Model 1

Answer the following questions :

1 **Complete each of the following :**

1. $2\frac{1}{5} \times$ .... $= 1$

2. If the order of the median of a set of values is the fourteenth , then the number of these values equals ....

3. $0.18 - 30\% =$ ....

4. $7x^3y^2 \times$ .... $= 21x^3y^5$

5. $(2x - 3)(x + 5) = 2x^2 +$ .... $- 15$

2 **Choose the correct answer from those given :**

1. The rational number that lies one third of the way between 8 and 12 from the smaller is ....

   (a) $8\frac{1}{3}$ (b) 10 (c) $9\frac{1}{3}$ (d) $10\frac{2}{3}$

2. If the mode of the values 7 , 5 , $x + 4$, 5 , 7 is 5 , then $x =$ ....

   (a) 1 (b) 4 (c) 5 (d) 7

3. If $\Delta + \square = 20$, $\Delta + \Delta + \square = 35$, then $\Delta =$ ....

   (a) 15 (b) 20 (c) 5 (d) 10

4. The arithmetic mean of the values 1 , 6 , 4 , 8 , 6 is ....

   (a) 25 (b) 5 (c) 6 (d) 8

5. If $\frac{2}{5}x = 10$, then $\frac{3}{5}x =$ ....

   (a) 25 (b) 15 (c) 20 (d) 5

6. $0.7 + 0.\dot{3} =$ ....

   (a) 1 (b) 3.7 (c) $0.\dot{3}7$ (d) $1\frac{1}{30}$

3 [a] Subtract : $5x^2 + y^2 - 3xy + 1$ from $6x^2 - 2xy + 3y^2$

[b] Use the distribution property to find the value of :

$$\frac{27}{16} \times \frac{11}{7} + \frac{27}{16} \times \frac{11}{7} - \frac{27}{16} \times \frac{6}{7}$$

4 [a] Simplify to the simplest form : $(2x - 3)(2x + 3) + 7$, then calculate the numerical value of the result when $x = -1$

[b] Find three rational numbers that lie between : $\frac{1}{2}$ and $\frac{1}{3}$

5 [a] **Divide :** $2x^3 + 3x^2 - 4x - 6$ **by** $2x + 3$ $\left(\text{where } x \neq -\frac{3}{2}\right)$

[b] **The following table shows Gehad's marks in mathematics exam in 6 months :**

Month	October	November	December	February	March	April
Mark	30	35	42	37	44	50

Find the arithmetic mean of the marks.

Model 2

Answer the following questions :

1 **Complete each of the following :**

1 $24 x^4 y^6 = 6 x^2 y^3 \times$ ....

2 The remainder of subtracting $-3x$ from $2x$ is ....

3 $1, 1, 2, 3, 5, 8,$ .... (in the same pattern)

4 If the mode of the values $7, 5, a + 3, 5, 7$ is 7, then $a =$ ....

5 $5x^2 + 15xy = 5x ($ .... $+$ .... $)$

2 **Choose the correct answer from those given :**

1 The algebraic term $6x^3 y^2$ is of the .... degree.

    (a) third   (b) fourth   (c) fifth   (d) sixth

2 The rational number that lies in half way between $\frac{1}{3}$ and $\frac{5}{9}$ is ....

    (a) $\frac{2}{3}$ (b) $\frac{3}{4}$ (c) $\frac{4}{9}$ (d) $\frac{5}{27}$

3 The multiplicative inverse of the number $\left(\frac{1}{2}\right)^0$ is ....

    (a) 2   (b) -2 (c) 1   (d) -1

4 If $\frac{5}{x+2}$ is a rational number , then $x \neq$ ....

    (a) -2 (b) 0   (c) 2   (d) 5

5 The median of the values $5, 4, 7$ is ....

    (a) 4   (b) 5   (c) 7   (d) 16

6 If the arithmetic mean of the values $3, 5$ and $x + 2$ is 4, then the arithmetic mean of the two values $5 - x, 5 + 2x$ is ....

    (a) 6   (b) 4   (c) 3   (d) 2

3 [a] Using the distribution property , find the value of : $\frac{3}{7} \times 2 + \frac{3}{7} \times 6 - \frac{3}{7}$

[b] Find three rational numbers that lie between : $\frac{1}{2}$ and $\frac{1}{3}$

---

4 [a] What is the increase of : $7x + 5y + z$ than $2x + 6y + z$?

[b] Divide : $14x^2y - 35xy^2 + 7xy$ by $7xy$ where $x \neq 0$ and $y \neq 0$

---

5 [a] Simplify to the simplest form : $(x - 3)(x + 3) + 9$, then

calculate the numerical value of the result when $x = 5$

[b] If the arithmetic mean of the numbers : $8 , 7 , 5 , 9 , 4 , 3 , k + 4$ is 6

, then find the value of : k

Model examination for the merge students

Answer the following questions :

1 **Complete each of the following :**

1 The algebraic term $5xy$ is of the .... degree.

2 $(x-3)(............ + ...) = x^2 - 9$

3 The rational number which hasn't a multiplicative inverse is ....

4 The median of the values 3 , 4 , 5 is ....

5 The number $\dfrac{4}{x}$ is a rational number if $x \neq$ ....

2 **Choose the correct answer from those given :**

1 If $\dfrac{4}{7}x = \dfrac{4}{7}$, then $x =$ ....

(a) 1   (b) 0   (c) 4   (d) 7

2 The arithmetic mean of the values 2 , 3 , 8 , 2 , 5 equals ....

(a) 3   (b) 2   (c) 4   (d) 8

3 The additive inverse of the number -3 is ....

(a) -3 (b) 3   (c) $\dfrac{1}{3}$ (d) $-\dfrac{1}{3}$

4 The remainder of subtracting $7x$ from $9x$ equals ....

(a) $2x$ (b) $16x$ (c) $-2x$ (d) 0

5 The mode of the values 3 , 3 , 4 , 4 , 5 , 3 is ....

(a) 4   (b) 22   (c) 5   (d) 3

3 **[a] Using the distribution property , complete to find :**

$\dfrac{5}{7} \times 8 + \dfrac{5}{7} \times 5 + \dfrac{5}{7} = \dfrac{5}{7}(............ + ... + ...) = \dfrac{5}{7}(............) = ...$

[b] If a $= \dfrac{1}{2}$, b $= -2$, complete the following :

$b \div a = (............) \div (............) = (............) \times (............) = ...$

4 **Put true (✔) or false (✘) :**

1 The quotient of $12x^4 + 6x$ by $6x$ is $2x^3 + 1$ ( )

2 The H.C.F. of : $15x^5 + 5x$ is $5x^5$ ( )

27

3️⃣ The rational number that lies between $\frac{1}{4}$ and $\frac{3}{4}$ is $\frac{1}{2}$ (   )

4️⃣ $5X + 3X = 8X$ (   )

5️⃣ If $(X + 4)^2 = X^2 + k + 16$, then $k = 4X$ (   )

5️⃣ **Match from column (A) to column (B) :**

Column (A)	Column (B)
1️⃣ If $\dfrac{X-7}{5} = 0$, then $X = $ ·············	3
2️⃣ $3X^2 + 15y = $ ············· $(X^2 + 5y)$	7
3️⃣ $(3X + 5) + (4X - 5) = $ ·············	50
4️⃣ $\dfrac{1}{2} = $ ············· %	1
5️⃣ If $\dfrac{a}{b} = \dfrac{1}{2}$, then $\dfrac{2a}{b} = $ ·············	$7X$

Some Schools Examinations

? on Algebra and Statistics

1 **Cairo Governorate**

Nozha Directorate of Education
Nozha Language Schools

Answer the following questions :

1 **Choose the correct answer :**

[1] The degree of the algebraic term $5 x y^2$ is ··············

   (a) zero   (b) 2   (c) 3   (d) 5

[2] The number $\dfrac{x+3}{x-5}$ equals zero if $x =$ ··············

   (a) – 3   (b) 3   (c) 5   (d) – 5

[3] The multiplicative inverse of $\left(\dfrac{2}{5}\right)^0$ is ··············

   (a) 1   (b) – 1   (c) $-\dfrac{2}{5}$ (d) $\dfrac{-5}{2}$

[4] The mode of the numbers : 5 , 8 , 4 , 9 and 8 is ··············

   (a) 9   (b) 4   (c) 8   (d) 5

[5] The H.C.F. of $12 x^3 + 6 x^2$ is ··············

   (a) 6   (b) $6 x^2$ (c) x^2 (d) $3 x^2$

2 **Complete :**

[1] $(x - y)(x + y) =$ ··············

[2] $(3 x + 5)^2 =$ ·············· $+ 30 x +$ ··············

[3] The arithmetic mean of the values : 5 , 4 , 8 , 3 , 10 is ··············

[4] $(3 x -$ ··············$)^2 =$ ·············· $- 12 x + 4$

[5] The number that lies half way between $\dfrac{2}{7}$ and $\dfrac{6}{7}$ is ··············

3 [a] [1] Add : $5 a - 2 b + 4 c$ and $4 b - 3 a + c$

     [2] Subtract : $2 x^2 + 5 x y - y^2$ from $(2 x + y)^2$

[b] Factorize by using the H.C.F : $4 x^2 y^3 - 2 x y^2 + 6 x^3 y$

4 [a] Divide : $x^2 - 5 x + 6$ by $x - 2$ (where $x \neq 2$)

[b] Use the distribution property to find : $\dfrac{5}{9} \times 4 + \dfrac{5}{9} \times 6 - \dfrac{5}{9}$

5 [a] Simplify : $(x - y)(x + y) - (x - y)^2$, then calculate the numerical value of the result when $x = 2$, $y = - 1$

[b] Find the mean and the median of the values : 20 , 15 , 25 , 10 , 30 , 7

② **Cairo Governorate** — Rod El-Farag Educational Zone
St. Mary's School

Answer the following questions :

1 **Choose the correct answer :**

1 If the arithmetic mean of the numbers : 5 , 8 , 7 , k , 9 , 3 is 6 , then k = ··············

   (a) 3   (b) 4   (c) 5   (d) 6

2 The multiplicative inverse of the number $\frac{3}{4}$ is ··············

   (a) $\frac{4}{3}$ (b) $-\frac{3}{4}$ (c) $-\frac{4}{3}$ (d) 1

3 If $(X - 6)(X + 6) = X^2 + k$, then k = ··············

   (a) -10 (b) 36   (c) 10   (d) -36

4 If the order of the median of a set of values is the fourth , then the number of these values equals ··············

   (a) 3   (b) 5   (c) 7   (d) 9

5 The rational number that lies on third of the way between 8 and 12 from the smaller is ··············

   (a) $8\frac{1}{3}$ (b) 10   (c) $9\frac{1}{3}$ (d) $10\frac{2}{3}$

6 $|-3| + |-5| = $ ··············

   (a) 2   (b) -2 (c) 8   (d) -8

2 **Complete :**

1 The algebraic term $6Xy^3$ whose degree is ··············

2 The mode of the values : 3 , 3 , 5 , 4 , 4 , 3 is ··············

3 $(2X - 3)(4X + 5) = $ ·············· $+$ ·············· $-$ ··············

4 1 , 4 , 9 , 16 , ·············· , ·············· (in the same pattern)

5 The number $\frac{5}{X - 4}$ is rational if $X \neq$ ··············

3 **[a] Subtract :** $3X^2 - 5Xy + 6y^2$ **from** $2X^2 - 4Xy - 2y^2$

[b] Find the quotient : $2X^3 + 11X^2 + 12X - 9$ **by** $X + 3$ **where** $X \neq -3$

4 **[a] Find three rational numbers between :** $\frac{1}{2}$ **and** $\frac{2}{3}$

[b] Simplify to the simplest form : $(2X - 3)(2X + 3) + 7$
, and calculate the numerical value of the result when $X = 1$

5 **[a]** Use the distribution property to find the value of : $\frac{7}{9} \times 14 + \frac{7}{9} \times 6 - \frac{7}{9} \times 2$

(without using the calculator)

[b] This table shows a pupil's marks of mathematics in five months :

Month	Oct.	Nov.	Dec.	Feb.	March
Marks	40	30	55	45	35

Find : **1** The arithmetic mean of the marks.

2 The median of the marks.

3 **Cairo Governorate**

Maadi Zone
Degla Valley Language School

Answer the following questions :

1 **Choose the correct answer :**

1 The arithmetic mean of the numbers : 3 , 6 , 1 , 6 is ·············

(a) 4   (b) 3   (c) 6   (d) 18

2 The mode of the values : 4 , 5 , 4 , 3 , 4 is ·············

(a) 3   (b) 4   (c) 5   (d) 4.5

3 The degree of the algebraic expression : $5 x^3 + 2 x^2 - 7$ is the ·············

(a) fifth.   (b) third.   (c) first.   (d) second.

4 If $\frac{x}{y} = \frac{2}{3}$, then $\frac{3 x}{2 y} = $ ·············

(a) $\frac{1}{5}$ (b) $\frac{3}{2}$ (c) $\frac{9}{4}$ (d) 1

5 If $\frac{x + 3}{x - 7} = 0$, then the value of x is ·············

(a) 3   (b) $- 7$ (c) $- 3$ (d) 7

6 The median of the values : 2 , 1 , 6 , 5 , 7 is ·············

(a) 2   (b) 6   (c) 5   (d) 7

2 **Complete :**

1 $\frac{3}{4} = $ ············· %

2 $(x - 5) (x + 5) = $ ·············

3 $12 x^2 y^3 \div 4 x y = $ ·············

4 The remainder of subtracting $- 7 x^2$ from $2 x^2$ is ·············

5 The rational number that lies at half the way between : $\frac{1}{4}$ and $\frac{1}{2}$ is ·············

3 [a] If $X = \frac{3}{4}$, $y = \frac{-5}{2}$, find in the simplest form the value of : $(X - y) \div (X + y)$

[b] Add : $3X^2 + 2X - 5$ and $2X^2 - 5X + 3$

4 [a] Divide : $\dfrac{10X^5 - 6X^3 + 4X^2}{2X^2}$

[b] Use the distribution property to find the value of : $\frac{3}{7} \times \frac{5}{6} + \frac{3}{7} \times \frac{7}{6} - \frac{3}{7}$

[c] Complete : $3X^2 - 6Xy = 3X (\cdots\cdots\cdots)$

5 [a] Simplify : $(2a - 3)(2a + 3) + 7$

[b] Write three rational numbers between : $\frac{1}{3}$ and $\frac{5}{6}$

[c] Find the mean of the values : $2 , 5 , 3 , 6 , 9$

4 **Giza Governorate** / Al-Agoza Directorate Supervision of Math

Answer the following questions :

1 Choose the correct answer :

1 If $\dfrac{3}{X - 5}$ is a rational number , then $X \neq \cdots\cdots\cdots$

   (a) zero   (b) 3   (c) -5 (d) 5

2 The algebraic term $2X^2 y$ is of the $\cdots\cdots\cdots$ degree.

   (a) first   (b) second   (c) third   (d) fourth

3 If $5a = 45$, $ab = 1$, then $b = \cdots\cdots\cdots$

   (a) $\frac{1}{9}$ (b) 5   (c) $\frac{1}{5}$ (d) 9

4 Fifth the number $5^{10} = \cdots\cdots\cdots$

   (a) 5^9 (b) 5^5 (c) 5^{11} (d) 3^9

5 The value of the digit 7 in the number 0.4753 is $\cdots\cdots\cdots$

   (a) $\frac{7}{10}$ (b) $\frac{7}{100}$ (c) $\frac{7}{1000}$ (d) 7

6 The mode of the values : $5 , 7 , 3 , 5$ is $\cdots\cdots\cdots$

   (a) 5   (b) 7   (c) 3   (d) 4

2 Complete :

1 $(2a - 3b)(a + 5b) = 2a^2 + \cdots\cdots\cdots - \cdots\cdots\cdots$

2 If three times a number is 15 , then fifth this number is $\cdots\cdots\cdots$

3 The number which lies at half the distance between : $\frac{1}{2}$ and $\frac{3}{4}$ is ············

4 $5 a^2$ increases $- 3 a^2$ by ···········

5 The median of the values : 4 , 8 , 3 , 5 , 7 is ············

3 [a] Use the distribution property to get the result of : $\frac{3}{5} \times 2 + \frac{3}{5} \times 6 - \frac{3}{5} \times 3$

[b] Simplify : $(2 X - 3)(2 X + 3) + 7$

4 [a] Find two rational numbers between : $\frac{1}{3}$ and $\frac{1}{2}$

[b] What is the increase of : $7 X + 5 y + z$ than $2 X + 6 y + z$?

5 [a] Factorize by taking out the H.C.F. : $18 X^2 y^3 + 6 X^3 y^2 - 3 X^2 y^2$

[b] If the arithmetic mean of the values : 8 , 7 , 5 , 9 , 4 , 3 , k + 4 is 6 , find the value of : k

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5 **Giza Governorate**

Omrania Directorate
El-Sadat Governmental Language School
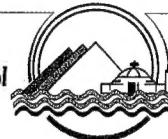
Answer the following questions :

1 Choose the correct answer :

1 The algebraic term $7 X y^3$ whose degree is ············

(a) 1　　　　(b) 2　　　　(c) 3　　　　(d) 4

2 The remainder of subtracting $3 X$ from $5 X$ is ············

(a) $2 X$　　　(b) $- 2 X$　　　(c) $8 X$　　　(d) $2 X^2$

3 The median of the values : 4 , 8 , 3 , 5 and 7 is ············

(a) 3　　　　(b) 4　　　　(c) 5　　　　(d) 7

4 If $\frac{a}{b} = 1$, then $5 a - 5 b =$ ············

(a) zero　　(b) 1　　　　(c) 3　　　　(d) 5

5 The mode of the values : 7 , 3 , 7 , 2 and 7 is ············

(a) 3　　　　(b) 7　　　　(c) 2　　　　(d) 5

6 If $\frac{15}{X} = \frac{3}{4}$, then $X =$ ············

(a) 20　　　(b) $- 20$　　　(c) 5　　　　(d) $- 5$

2 Complete each of the following :

1 The multiplicative inverse of $\frac{-7}{5}$ is ············

2 The additive identity element in $\mathbb{Q}$ is ············

3. The mean of the numbers : 6 , 4 , 1 , 5 and 9 is ···············

4. If $\dfrac{X+3}{X-2} \in \mathbb{Q}$, then $X \neq$ ···············

5. The rational number in half way between : $\dfrac{1}{7}$ and $\dfrac{5}{7}$ is ···············

3 [a] Add : $5X^2 - 7Xy + 4y^2$ and $4X^2 + 5Xy - 9y^2$

[b] Use the distribution property to find : $\dfrac{8}{13} \times 11 + \dfrac{8}{13} \times 9 + \dfrac{8}{13} \times 6$

4 [a] Simplify : $(X-5)(X+5) + 25$, then find the value of the result if $X = 3$

[b] Find three rational numbers between : $\dfrac{1}{3}$ and $\dfrac{1}{2}$

5 [a] Factorize by taking out the H.C.F. : $27X^3 y^2 - 9X^2 y^3 + 3Xy$

[b] The following table shows the distribution of marks of 20 students in an exam :

Marks	7	8	9	10	Total
No. of students	5	9	4	2	20

Find the mode of these marks.

6 Alexandria Governorate

Middle Educational Zone
Math's Supervision

Answer the following questions :

1 Complete each of the following :

1. If $\dfrac{4}{6} = \dfrac{12}{X}$, then $X + 2 =$ ···············

2. The multiplicative inverse of $-\dfrac{2}{3}$ is ···············

3. $\dfrac{1}{2} =$ ··············· %

4. The rational number in half way between $\dfrac{3}{5}$ and $\dfrac{4}{5}$ is ···············

5. If $a + 3b = 7$, and $c = 3$, then the numerical value of : $a + 3(b + c)$ is ···············

6. The arithmetic mean of the set of values : 2 , 3 , 8 , 2 , 5 equals ···············

2 Choose the correct answer :

1. $0.0635 \simeq$ ··············· to the nearest hundredth.

   (a) 0.63   (b) 0.07   (c) 0.06   (d) 0.063

2. $0.7 + 0.\dot{3} =$ ···············

   (a) 1   (b) 3.7   (c) 0.3̇7   (d) $1\dfrac{1}{30}$

3. If the order of the median of a set of values is the fourteenth , then the number of these values equals ···············

   (a) 27   (b) 15   (c) 7   (d) 28

4 $(4X-3)(X-4) = $ ··············

   (a) $4X^2 - 19X - 12$ (b) $4X^2 - 7$ (c) $4X^2 - 12$ (d) $4X^2 - 19X + 12$

5 The mode of the values : 3 , 3 , 4 , 4 , 5 , 3 is ··············

   (a) 4   (b) 22   (c) 5   (d) 3

3 [a] Multiply : $(2X+y)(X+2y)$, then find the numerical value at : $X = 2$, $y = 1$

[b] Use the distribution property to find : $\frac{7}{12} \times \frac{23}{45} + \frac{17}{12} \times \frac{23}{45} - 2 \times \frac{23}{45}$

4 [a] Divide : $X^3 y - 4Xy^2 + 6Xy + X^2 y^2$ by Xy

[b] Find three rational numbers between : $\frac{4}{5}$ and $\frac{2}{3}$

5 [a] Subtract : $5X^2 + y^2 - 3Xy$ from $X^2 - 2Xy + 3y^2$

[b] The following table shows the marks of Alaa in maths tests in 6 months :

Month	Oct.	Nov.	Dec.	Feb.	March	April
Mark	41	35	47	37	44	48

Find : **1** The median for the previous marks.   **2** The mean for the previous marks.

7 Alexandria Governorate   El-Montaza Educational Zone   Math's Supervision

Answer the following questions :

1 **Choose the correct answer :**

  1 The additive inverse of the number $\left(\frac{-1}{5}\right)^0$ is ··············

    (a) 1   (b) -1 (c) 5   (d) $\frac{1}{5}$

  2 The degree of the algebraic expression : $3X^2 + 5Xy^2 + 6y^2$ is ··············

    (a) zero   (b) second   (c) third   (d) fourth

  3 If $\frac{X}{y} = 1$, then $3X - 3y = $ ··············

    (a) zero   (b) 1   (c) 3   (d) 6

  4 If the arithmetic mean of six values is 12 , then the sum of these values equals ··············

    (a) 2   (b) 6   (c) 18   (d) 72

  5 The rational number that lies at the midpoint of the distance between $\frac{1}{4}$ and $\frac{1}{3}$ is ··············

    (a) $\frac{1}{12}$ (b) $\frac{7}{12}$ (c) $\frac{3}{4}$ (d) $\frac{7}{24}$

  6 The length of a rectangle is $2X$ cm. and its width is y cm. , then its perimeter = ··············

    (a) $2Xy$ (b) $3Xy$ (c) $2X + y$ (d) $4X + 2y$

2 **Complete :**

1 $2 X^3 \times 3 X y = $ ....

2 $2 \frac{1}{5} \times $ .... $= 1$

3 The remainder of subtracting $(-3 X)$ from $(2 X)$ is ....

4 If the mode of the values : $7 , 5 , a + 3 , 5 , 7$ is 7 , then $a = $ ....

5 The median of the values : $5 , 9 , 7 , 4 , 3 , 8$ is ....

3 **[a]** Use the distribution property to find the value of : $\frac{5}{17} \times 10 + \frac{5}{17} \times 23 + \frac{5}{17}$

[b] Add : $2 a - 3 b + 5 c$ **and** $3 a + b - 5 c$

[c] Divide : $6 X^2 y^2 + 9 X^2 y^3$ **by** $6 X^2 y^2$ $(X \neq 0 , y \neq 0)$

4 **[a]** If $a + b = \frac{5}{4}$ and $b + c = \frac{3}{4}$, **find the value of :** $a + 2 b + c$

[b] **From :** $5 X^2 + 4 X - 3$ **subtract :** $4 X^2 - 5 X + 3$

[c] **Simplify :** $(X - 1)^2 + (X + 3)(X - 3)$

5 **[a]** **Factorize :** $12 a^2 b + 18 a^3 b^2$

[b] If $a^2 = 25 , b^2 = 9$ and $a b = 15$, **then find the value of :** $(a - b)^2$

[c] If the arithmetic mean of the values : $3 , 5$ and $X + 2$ is 4
, **then find the arithmetic mean of the two values :** $5 - X , 5 + 2 X$

[d] If the set of ages of pupils in one school is as follows :
$\{7 , 9 , 13 , 6 , 8 , 12 , 10 , 14 , 11\}$, find the median age of this set.

8 **El-Kalyoubia Governorate**

Directorate of Education
Math Supervision

Answer the following questions :

1 **Choose the correct answer :**

1 $|-5| - |2| = $ ....

(a) 3   (b) -7 (c) 10   (d) -3

2 If the arithmetic mean for the numbers $3 , 5 , X$ is 4 , then $X = $ ....

(a) 3   (b) 4   (c) 5   (d) 6

3 The remainder of subtracting $9 X$ from $7 X$ equals ....

(a) $2 X$ (b) $-2 X$ (c) $16 X$ (d) -2

4 If $6 , 5 , 12$ and X are proportional numbers , then $X = $ ....

(a) 8   (b) 10   (c) 5   (d) 7

⑤ The algebraic term $3x^2y$ is of the ············· degree.

    (a) third   (b) fourth   (c) fifth   (d) sixth

⑥ If the mode of the values : $7 , 5 , x + 4 , 5 , 7$ is 5 , then $x = $ ···············

    (a) 1   (b) 4   (c) 5   (d) 7

② Complete each of the following :

① $5x^2 + 15xy = 5x ($ ················· $+$ ················· $)$

② 12 % of 500 kg. = ············· kg.

③ The median of the values : $4 , 8 , 3 , 5 , 7$ is ·············

④ The rational number which hasn't a multiplicative inverse is ·············

⑤ The rational number that lies one third of the way between 8 and 12 from the smaller number is ·············

③ [a] Find three rational numbers that lie between : $\dfrac{1}{2}$ and $\dfrac{1}{3}$

[b] Simplify to the simplest form : $(x + 5)^2 + (x + 2)(x - 2)$

④ [a] ① Subtract : $5x^2 + y^2 - 3xy - 1$ from $6x^2 - 2xy + 3y^2$

      ② Divide : $x^2 - 5x + 6$ by $x - 3$ (where $x \neq 3$)

[b] If $a = \dfrac{3}{4}$, $b = -\dfrac{5}{2}$, find in the simplest form the numerical value of : $\dfrac{a + b}{a - b}$

⑤ [a] The length of a rectangle is $4x$ cm. and its width is $3x$ cm. calculate its area.

[b] The following table shows Gehad's marks in mathematics exam in 6 months :

Month	October	November	December	February	March	April
Mark	20	25	42	27	40	50

Find the arithmetic mean of the marks.

⑨ El-Gharbia Governorate   East-Tanta Educational Directorate
Al-Salam Language School

Answer the following questions :

① Complete each of the following :

① $\dfrac{3}{4} + 50 \% = \dfrac{\text{·············}}{\text{·············}}$

② $\dfrac{4}{5} = $ ············· %

③ The additive inverse of the number $\left| -\dfrac{2}{3} \right|$ is ·············

4 The most repeated value of a set of values is called ....

5 The smallest natural number is ....

6 If the arithmetic mean of the values : 8 , x , 7 , 5 is 6 , then $x =$ ....

2 **Choose the correct answer :**

1 The number $\frac{5}{3} >$ ....

   (a) $\frac{10}{3}$ (b) $\frac{25}{9}$ (c) $\frac{10}{6}$ (d) $\frac{3}{5}$

2 If 3 a = 27 and a b = 1 , then b = ...

   (a) $\frac{1}{9}$ (b) $\frac{1}{5}$ (c) 5   (d) 9

3 The coefficient of the algebraic term $- 5\, x^2\, y$ is ....

   (a) 5   (b) $- 5$ (c) 3   (d) $- 3$

4 The median of the values : 11 , 18 , 7 , 10 , 21 is ....

   (a) 10   (b) 11   (c) 7   (d) 21

5 The H.C.F. of : $10\, x^2 + 5\, x$ is ....

   (a) $2\, x$ (b) $5\, x$ (c) 5   (d) x

3 **[a] Add :** $2\, a - 3\, b + 5\, c$ **and** $3\, a + b - 5\, c$

[b] Divide : $x^2 + 6\, x + 5$ **by** $x + 5$ (where $x \neq - 5$)

4 **[a] Use the property of distribution to find the value of :**

$$\frac{6}{37} \times 7 + \frac{6}{37} \times 5 + \frac{6}{37} \times (- 11)$$

[b] Factorize by identifying the H.C.F. : $27\, x^4 - 18\, x^3$

5 **[a] Add :** $2\, x + y + 5$ **and** $3\, x + 2\, y - 1$

[b] 1 Find the mode of : 2 , 4 , 7 , 4 , 5

    2 Find the median of : 4 , 8 , 3 , 5 , 7

10 **El-Dakahlia Governorate**   Math's Supervision

Answer the following questions :

1 **Choose the correct answer :**

1 If $a \times \frac{b}{3} = \frac{a}{3}$, then b = ...

   (a) $\frac{a}{3}$ (b) 0   (c) a   (d) 1

2 If the mode of the values : 7 , 5 , y + 3 , 5 and 7 is 7 , then y = ················

(a) 3　　　　　　(b) 4　　　　　　(c) 5　　　　　　(d) 7

3 The algebraic term $2^2 x^3 y^2$ is of the ············· degree.

(a) third　　　　(b) fourth　　　　(c) fifth　　　　(d) seventh

4 $(15 x^4 + 5 x^3) \div 5 x^3 = $ ···············

(a) $3 x^2 + x$　　(b) $5 x^2 + 1$　　(c) $3 x + 1$　　(d) $4 x^4$

5 The rational number that lies in half way between $\frac{1}{3}$ and $\frac{5}{9}$ is ···············

(a) $\frac{2}{3}$　　　　(b) $\frac{3}{4}$　　　　(c) $\frac{4}{9}$　　　　(d) $\frac{5}{27}$

6 The additive inverse of the number $\left(\frac{1}{2}\right)^{zero}$ is ···············

(a) 2　　　　　　(b) − 1　　　　　(c) 1　　　　　　(d) − 2

2 Complete each of the following :

1 The order of the median for the values : 4 , 8 , 7 , 5 , 3 is ···············

2 0.18 − 30 % = ···············

3 If $(2 x + y)^2 = 4 x^2 + k x y + y^2$, then k = ···············

4 If $\frac{5}{a + 2}$ is a rational number , then a ≠ ···············

5 The arithmetic mean for the values : 18 , 35 , 24 , 7 is ···············

3 [a] Use the distribution property to find the value of :

$$\frac{7}{12} \times \frac{23}{45} + \frac{17}{12} \times \frac{23}{45} - 2 \times \frac{23}{45}$$

[b] Subtract : $(- x^2 - 4 x + 7)$ from $(3 x^2 - 4 x - 2)$

4 [a] Factorize by identifying the H.C.F. : $3 a (4 a + 5 b) - 2 b (4 a + 5 b)$

[b] Find three rational numbers between : $\frac{4}{5}$ and $\frac{2}{3}$

5 [a] Simplify to the simplest form : $(y - 3) (y + 3) + 9$

[b] The following table shows a student's marks of mathematics in 6 months :

Month	Oct.	Nov.	Dec.	Feb.	March	April
Mark	41	35	47	37	44	48

Find : **1** The median for the previous marks.

　　　　2 The mean for the previous marks.

11 **Suez Governorate**

Directorate of Education
Mathematics Inspectorate

Answer the following questions :

1 **Choose the correct answer :**

1 The multiplicative inverse of $\left(\frac{1}{2}\right)^0$ is ··············

(a) 2   (b) – 2   (c) 1   (d) – 1

2 The degree of the algebraic term $6 x^3 y^2$ is ·············· degree.

(a) third   (b) fourth   (c) fifth   (d) sixth

3 $2 a b^2 \div$ zero = ··············

(a) undefined.   (b) zero.   (c) a b   (d) $2 a b^2$

4 If the mode of the values : 7 , 5 , x + 4 , 5 , 7 is 5 , then x = ··············

(a) 7   (b) 4   (c) 5   (d) 1

5 If $\frac{5}{x + 2}$ is a rational number , then $x \neq$ ··············

(a) – 2   (b) 0   (c) 2   (d) 5

6 The number that lies half way between $\frac{1}{3}$ and $\frac{5}{9}$ is ··············

(a) $\frac{2}{3}$ (b) $\frac{3}{4}$ (c) $\frac{4}{9}$ (d) $\frac{5}{27}$

2 **Complete :**

1 $2 \frac{1}{5} \times$ ·············· = 1

2 If the order of the median of the values is fourteenth , then the number of these values is ··············

3 The result of subtracting – 7 x from 2 x is ··············

4 $(2 x - 3) (x + 5) = 2 x^2 +$ ·············· – 15

5 The arithmetic mean of the values : 1 , 6 , 8 , 4 , 6 is ··············

3 [a] By using the distribution property , find the value of : $\frac{3}{7} \times 2 + \frac{3}{7} \times 6 - \frac{3}{7}$

[b] Find three rational numbers between : $\frac{1}{2}$ and $\frac{1}{3}$

4 [a] Find the quotient : $2 x^2 + 13 x + 15$ by $x + 5$

[b] Simplify to its simplest form : $(x + 3) (x - 3) + 9$
, then find the numerical value at $x = 5$

5 [a] What is the increase of : $7 x + 5 y + 2$ than $2 x + 6 y + 7$?

[b] Factorize by taking out the H.C.F : $12 a^2 b + 18 a^3 b^2$

12 **Port Said Governorate** | East Educational Administration Math Orientation

Answer the following questions :

1 **Complete each of the following :**

[1] $24\,X^4\,y^6 = 6\,X^2\,y^3 \times$ ⋯⋯⋯⋯

[2] The remainder of subtracting $-3\,X$ from $2\,X$ is ⋯⋯⋯⋯

[3] $1\,,1\,,2\,,3\,,5\,,8\,,$ ⋯⋯⋯⋯ (in the same pattern).

[4] If the mode of the values : $7\,,5\,,a+3\,,5\,,7$ is 7 , then a = ⋯⋯⋯⋯

[5] $5\,X^2 + 15\,X\,y = 5\,X\,(\cdots\cdots + \cdots\cdots)$

2 **Choose the correct answer from those given :**

[1] The algebraic term $8\,X^3\,y^2$ is of the ⋯⋯⋯⋯ degree.

   (a) third   (b) fourth   (c) fifth   (d) sixth

[2] The rational number that lies in half way between $\frac{1}{3}$ and $\frac{5}{9}$ is ⋯⋯⋯⋯

   (a) $\frac{2}{3}$ (b) $\frac{3}{4}$ (c) $\frac{4}{9}$ (d) $\frac{5}{27}$

[3] The multiplicative inverse of the number $\left(\frac{1}{2}\right)^{\text{zero}}$ is ⋯⋯⋯⋯

   (a) 2 (b) -2 (c) 1 (d) -1

[4] If $\dfrac{5}{X+2}$ is a rational number , then $X \neq$ ⋯⋯⋯⋯

   (a) -2 (b) zero   (c) 2 (d) 5

[5] The median of the values : $5\,,4\,,7$ is ⋯⋯⋯⋯

   (a) 4 (b) 5 (c) 7 (d) 16

[6] If the arithmetic mean for the set of values : $3\,,5\,,X+2$ is 4

   , then the arithmetic mean for the two values : $5-X\,,5+2\,X$ is ⋯⋯⋯⋯

   (a) 6 (b) 4 (c) 3 (d) 2

3 [a] Use the distribution property to find the value of : $\frac{3}{7} \times 2 + \frac{3}{7} \times 6 - \frac{3}{7}$

[b] Find three rational numbers that lie between : $\frac{1}{2}$ and $\frac{1}{3}$

4 [a] What is the increase of : $7\,X + 5\,y + z$ than $2\,X + 6\,y + z$?

[b] Divide : $14\,X^2\,y - 35\,X\,y^2 + 7\,X\,y$ by $7\,X\,y$, $X \neq$ zero , $y \neq$ zero

5 [a] Simplify to the simplest form : $(X-3)(X+3) + 9$

[b] The following table shows Gehad's marks of mathematics in 6 months :

Month	October	November	December	February	March	April
Mark	30	35	42	37	44	50

Find the arithmetic mean of the marks.

13 Kafr El-Sheikh Governorate

Mathematics Inspectorate
Language Schools
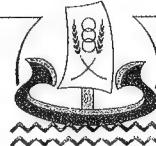
Answer the following questions :

1 Choose the correct answer :

1 The median of the values : 7 , 3 , 4 , 5 , 2 is ···············

(a) 7   (b) 5   (c) 4   (d) 3

2 The rational number $\dfrac{x-7}{x+3}$ = zero , when ···············

(a) $x = -3$ (b) $x = 7$ (c) $x \neq 3$ (d) $x \neq 7$

3 The quotient of dividing $2.25 \div 1.5$ = ···············

(a) 1.5   (b) 15   (c) 0.15   (d) 500

4 The arithmetic mean of the numbers : 3 , 9 , 1 , 7 is ···············

(a) 20   (b) 5   (c) 4   (d) 3

5 $(x^2 + x) \div x =$ ···············

(a) zero   (b) x (c) $2x + 1$ (d) $x + 1$

6 $\left| \dfrac{-5}{3} \right|$ ··············· zero.

(a) <   (b) =   (c) >   (d) ≤

2 Complete :

1 $6 b^3 = 2 b \times$ ···············

2 The mode of the values : 7 , 5 , a + 4 , 5 , 7 is 7 , then a = ···············

3 The additive inverse of $\left[4 \times \left(-1 \frac{1}{4} \right) \right]$ is ···············

4 The degree of the algebraic term : $3^2 x^2 y^2$ is ···············

5 The rational number that hasn't a multiplicative inverse is ···············

3 [a] Subtract : $5 x^2 + y^2 - 3 x y$ **from** $x^2 - 2 x y + 3 y^2$

[b] **Use the distribution property to find :** $\dfrac{5}{7} \times 5 + \dfrac{5}{7} \times 10 - \dfrac{5}{7}$

[c] **Simplify :** $(2 x + 3)(2 x - 3) + 7$

4 **[a]** If $x = \frac{3}{4}$, $y = -\frac{5}{2}$, **find the numerical value of :** $(x - y) \div (x + y)$

[b] **Divide :** $6x^2 - xy - 15y^2$ **by** $2x + 3y$ where $(2x + 3y) \neq 0$

[c] **Add :** $3a^2 + 2a + 5$ **and** $2a^2 - 5a + 3$

5 **[a]** **Factorize by identifying the H.C.F. :** $12xy^3 + 18xy^2$

[b] **Find four rational numbers between :** zero and $\frac{1}{2}$

[c] **The following table shows Gehad's marks of mathematics in 6 months :**

Months	October	November	December	February	March	April
Marks	31	35	42	36	46	50

Find : **1** The arithmetic mean. **2** The median.

14 **El-Menia Governorate** / Maghagha Educational Directorate
St. Mark & El Tewfik Schools
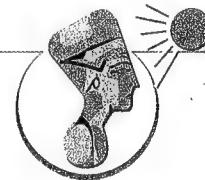
Answer the following questions :

1 **Choose the correct answer :**

1 The number $\frac{x - 3}{x + 5}$ is a rational number if $x \neq$ ....

(a) 3   (b) − 5   (c) 5   (d) − 3

2 The mode of the values : 3 , 3 , 4 , 4 , 5 , 3 is ....

(a) 4   (b) 22   (c) 5   (d) 3

3 $\frac{3y}{5} - \frac{y}{5} =$ ....

(a) $\frac{2}{5}$ (b) $\frac{y}{5}$ (c) $\frac{2y}{5}$ (d) 2 y

4 The algebraic expression : $x^3 - 3x^2 + 4$ is of the .... degree.

(a) 1st (b) 2nd (c) 3rd (d) 4th

5 If $\frac{15}{x} = \frac{-3}{4}$, then $x =$ ....

(a) − 20   (b) − 5   (c) 5   (d) 20

6 $(x + y)(x - y) =$ ....

(a) 2 x   (b) $(x - y)^2$ (c) x^2 (d) $x^2 - y^2$

2 **Complete the following :**

1 The mean of the numbers : 10 , 4 , 7 , 3 , 1 is ....

2 If $(x - y)(3x + 2y) = 3x^2 + kxy - 2y^2$, then k = ...

43

3 The coefficient of the algebraic term $(- 5 x y^2)$ is ···············

4 The rational number which hasn't a multiplicative inverse is ···············

5 If the order of the median of a set of values is fourth , then the number of these values is ···············

8 [a] Find three rational numbers lying between : $\frac{1}{3}$ and $\frac{1}{2}$

[b] Simplify : $(2 x + 3)^2 - 12 x$, then find the numerical value of the result at $x = - 2$

4 [a] Using the distribution property , find the value of : $\frac{3}{7} \times 10 + \frac{3}{7} \times 5 - \frac{3}{7}$

[b] Divide : $(x^2 + 6 x + 5)$ by $(x + 5)$ where $(x \neq - 5)$

5 [a] Factorize by taking out the H.C.F. : $3 m^4 n^2 - 6 m^3 n^3 + 9 m^2 n^4$

[b] Subtract : $(- x^2 - 4 x + 7)$ from $(x^2 - 4 x - 2)$

[c] Find k if the arithmetic mean of the values : 27 , 8 , 16 , 24 , 6 , k is 14

15 **Aswan Governorate** / M.M. Yackoub English Language Government School
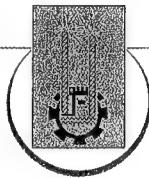
Answer the following questions :

1 **Choose the correct answer :**

1 The algebraic term $6 x^3 y$ is of the ··············· degree.

(a) first   (b) fourth   (c) sixth   (d) fifth

2 The mode of the values : 7 , 5 , $x + 4$, 5 , 7 is 5 , then $x =$ ···············

(a) 1   (b) 4   (c) 5   (d) 7

3 If the rational number $\frac{x - 2}{x + 3} = 0$, then the value of $x =$ ···············

(a) 1   (b) 2   (c) $- 2$ (d) $- 3$

4 The multiplicative inverse of the number $3 \frac{2}{5}$ is ···············

(a) $- 3 \frac{2}{5}$ (b) $3 \frac{2}{5}$ (c) $\frac{17}{5}$ (d) $\frac{5}{17}$

5 Subtracting $- 2 x$ from $3 x$ equals ···············

(a) x (b) $- 5 x$ (c) $5 x$ (d) $- 6 x^2$

6 $(3 x + 5) (x + 2) = 3 x^2 +$ ··············· $+ 10$

(a) $- 7$ (b) $11 x$ (c) $5 x$ (d) $7 x$

2 **Complete :**

① $5 x^3 y^3 \times$ .... $= 15 x^4 y^5$

② If $\dfrac{x}{y} = 1$, then $5 x - 5 y =$ ....

③ $1 \dfrac{2}{5} \times$ .... $= 1$

④ The number that lies at half way between $\dfrac{1}{4}$ and $\dfrac{5}{8}$ is ....

⑤ The median for the values : $4 , 8 , 3 , 5 , 7$ is ....

3 [a] Add : $3 x - 2 y + 5$ and $x + 2 y - 2$

[b] Find three rational numbers that lie between : $\dfrac{1}{4}$ and $\dfrac{1}{2}$

4 [a] Use the distribution property to calculate :

$$\dfrac{7}{12} \times \dfrac{23}{45} + \dfrac{17}{12} \times \dfrac{23}{45} - 2 \times \dfrac{23}{45}$$

[b] Divide : $21 x^2 y - 7 x y + 35 x y^3$ by $7 x y$

5 [a] What is the increase of : $8 x + 4 y + 3 z$ than $2 x + 6 y - z$?

[b] Simplify to the simplest form : $(5 x - 2)^2 - (5 x - 2)(5 x + 2) + 7$

[c] The following table shows Habiba's marks of mathematics in 6 months :

The month	Oct.	Nov.	Dec.	Feb.	March.	April
The mark	41	35	47	37	44	48

Find the arithmetic mean of the marks.

Second Geometry
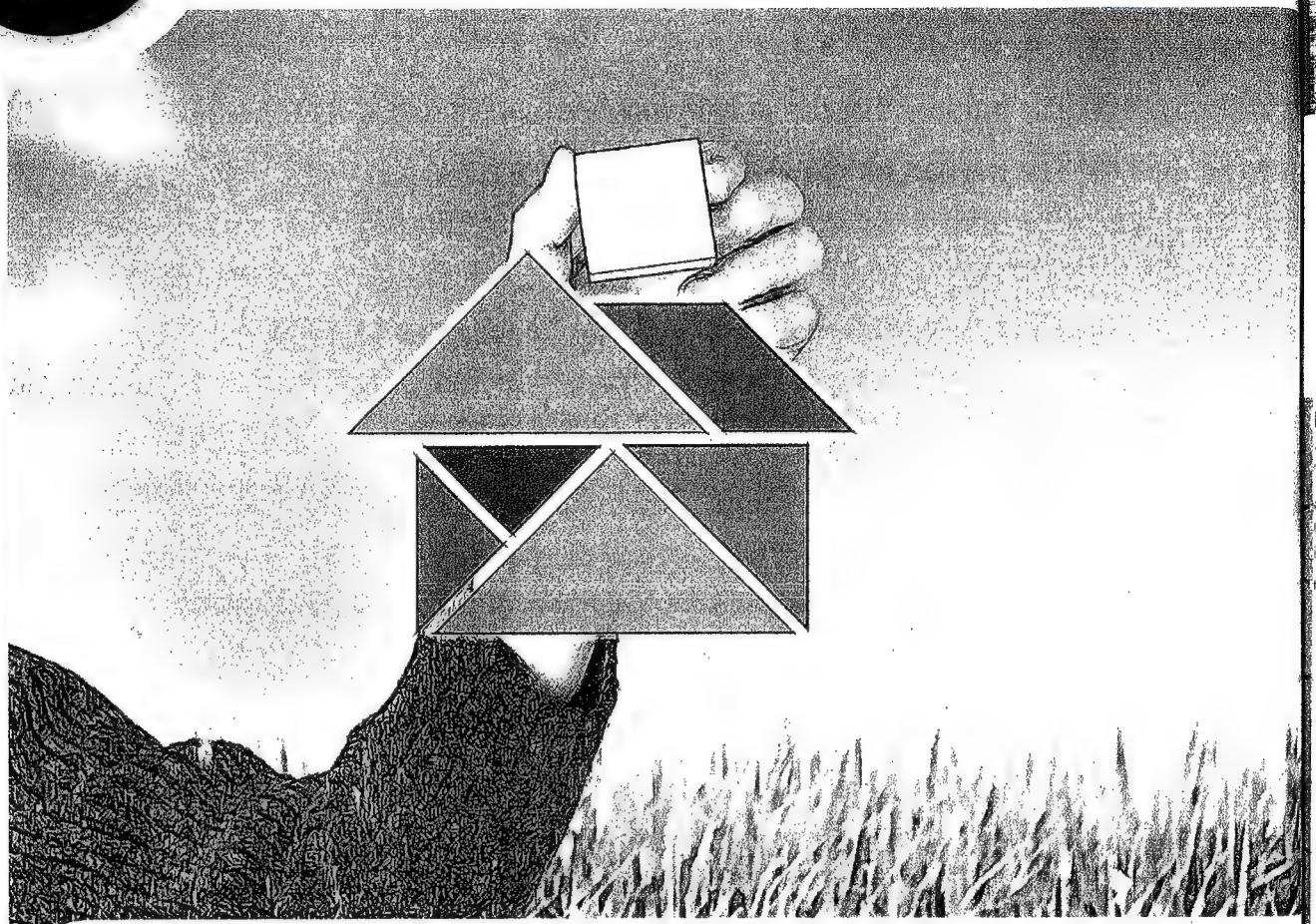
Quizzes

on Geometry
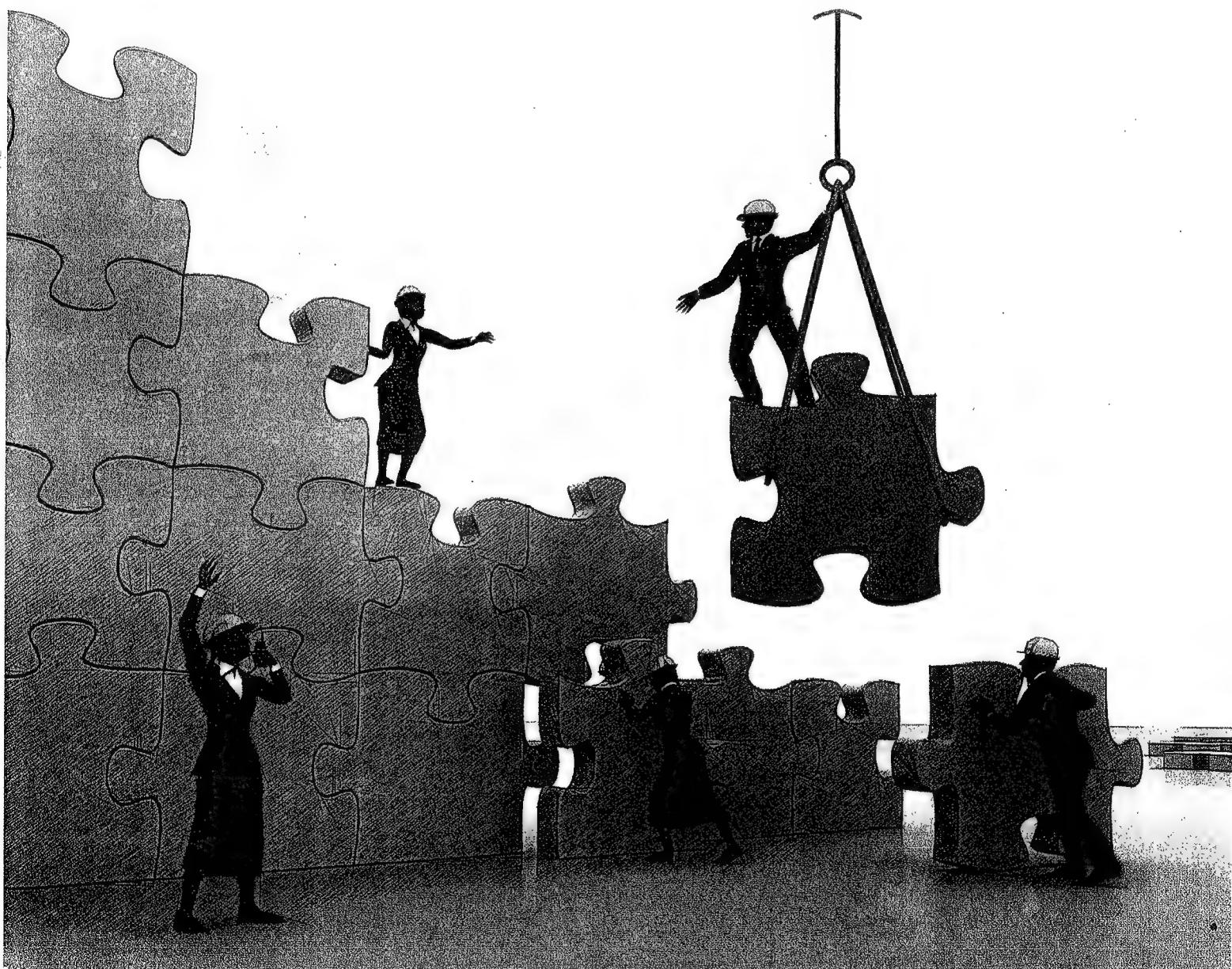
Quiz ① on lesson 1 – unit 4

time 15 min.

1 **Complete the following :**

1 The acute angle supplements ··········· angle.

2 If m ($\angle$ ABC) = 60° , then m (reflex $\angle$ ABC) = ···········°

3 If the ratio between the measures of two supplementary angles is 1 : 2 , then the measure of the smaller angle equals ···········°

2 **[a]** **In the opposite figure :**

Are $\overrightarrow{CA}$ and $\overrightarrow{CB}$

on the same straight line ? Why ?
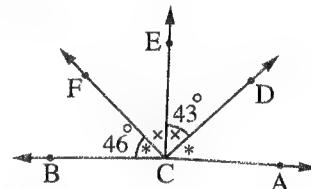
[b] **In the opposite figure :**

If $\overrightarrow{BC} \perp \overrightarrow{BA}$

, then find the value of x
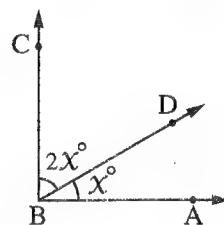
Quiz ② till lesson 2 – unit 4

time 15 min.

1 **Choose the correct answer from those given :**

1 **From the opposite figure :**

m ($\angle$ AMC) = ···········

(a) 60°   (b) 120°

(c) 150°   (d) 360°
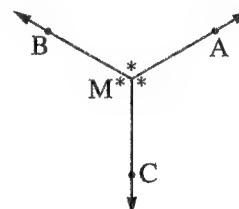
2 If $\angle$ A complements $\angle$ B and m ($\angle$ A) = 48° , then m (reflex $\angle$ B) = ···········

(a) 309°   (b) 312°   (c) 315°   (d) 318°

3 The sum of measures of the accumulative angles at a point equals ···········

(a) 2 right angles.   (b) 3 right angles.   (c) 4 right angles.   (d) 5 right angles.

2 **In the opposite figure :**

$\overleftrightarrow{AB} \cap \overleftrightarrow{CD} = \{M\}$, m ($\angle$ CME) = 90°

, m ($\angle$ AMC) = m ($\angle$ EMB)

Find : 1 m ($\angle$ AMC)   2 m ($\angle$ BMD)

3 m ($\angle$ AMD)
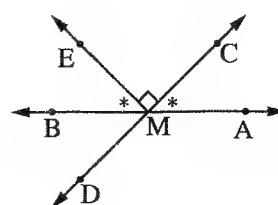
Quiz ③ till lesson 3 – unit 4

time 15 min.

1 **In the opposite figure :**

If $F \in \overline{BC}$ and the figure ABFE ≡ the figure DCFE

, complete the following :

[1] The axis of symmetry of the figure is ....

[2] AE = ... cm.   [3] ∠ D ≡ ∠ ....

[4] m (∠ FED) = ...°

[5] m (∠ EFB) = ...°

[6] The perimeter of the figure ABCDE = ... cm.

(Figure: D, 3cm., E, A with 110°, 5cm., 4cm., C, F, 4cm., B)
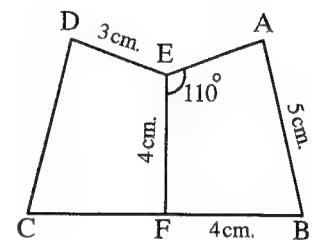
2 **In the opposite figure :**

m (∠ AFB) = 120° , m (∠ BFC) = 80°

, m (∠ AFD) = 90°

Find : m (∠ CFD)

(Figure: B, 80°, 120°, C, F, A, D)
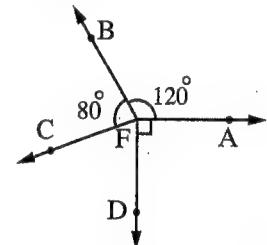
Quiz ④ till lesson 4 – unit 4

time 15 min.

1 **Complete the following :**

[1] If Δ ABC ≡ Δ XYZ , m (∠ A) = 40°

, m (∠ Y) = 60° , then m (∠ C) = ...°

[2] The two triangles are congruent if in one triangle , two sides and ....

[3] The two complementary adjacent angles , their outer sides are ....

2 **[a] In the opposite figure :**

AB = AC

, BD = CD

Is Δ ABD ≡ Δ ACD ? Why ?

(Figure: A, B, D, C)
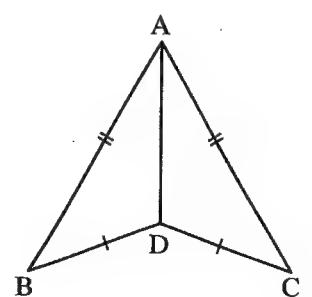
[b] In the opposite figure :

$B \in \overleftrightarrow{AC}$, m (∠ EBC) = 80°

, m (∠ DBE) = 40°

and m (∠ DBF) = 90°

Find : m (∠ CBF)

(Figure: E, D, 40°, 80°, C, B, A, F)

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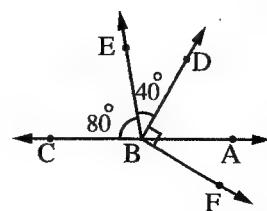
Quiz ⑤   till lesson 5 – unit 4

time
15 min.

1 Complete the following :

1. If a straight line cuts two parallel straight lines , then each two alternate angles are ···············

2. The right angle complements an angle of measure ··············°

3. If two straight lines are parallel to a third straight line , then they are ··············

2 [a] In the opposite figure :

$\overrightarrow{AB}$ // $\overrightarrow{ED}$, m ($\angle$ A) = 120°

and m ($\angle$ E) = 130°

Find : m ($\angle$ C)
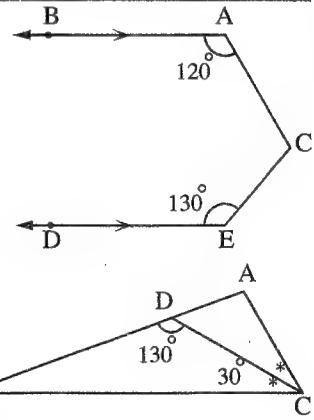
[b] In the opposite figure :

Find : m ($\angle$ A)
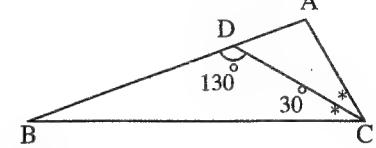
Quiz ⑥   till lesson 6 – unit 4

time
15 min.

1 Complete the following :

1. If the two adjacent angles are supplementary , then their outer sides are ··············

2. The axis of symmetry of the line segment is ··············

3. **In the opposite figure :**

If M $\in$ $\overleftrightarrow{AB}$,

then the value of x = ··············°
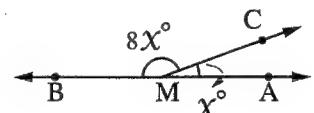
2 [a] Using the geometric instruments , draw an angle of measure 120° and bisect it into four equal angles in measure.   (Don't remove the arcs)

[b] Draw $\triangle$ ABC in which AB = BC = 5 cm. and AC = 6 cm. Using the compasses , bisect $\overline{AC}$ in D , then draw $\overline{BD}$ Does $\overline{BD} \perp \overline{AC}$?   (Don't remove the arcs)

Final Revision

of Geometry

Revision for the important theorems, corollaries and rules of geometry

Zero angle

Its measure is 0°

Obtuse angle

Its measure is more than 90° and less than 180°

Acute angle

Its measure is more than 0° and less than 90°

The types of angles

Straight angle

Its measure is 180°

Right angle

Its measure is 90°

Reflex angle

Its measure is more than 180° and less than 360°

The two vertically opposite angles are equal in measure.

Sum of measures of the accumulative angles at a point is 360°

Sum of measures of the two complementary angles is 90°

The relation between the angles

Sum of measures of the two supplementary angles is 180°

The complements of the same angle are equal in measure.

The supplements of the same angle are equal in measure.

The two adjacent complementary angles :
Their outer sides are perpendicular.
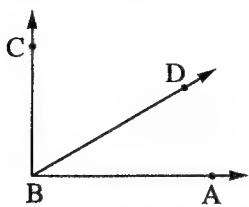
If m (∠ ABD) + m (∠ DBC) = 90°
, then $\overline{AB} \perp \overline{BC}$

The two adjacent angles

The two adjacent supplementary angles :
Their outer sides are on the same straight line.
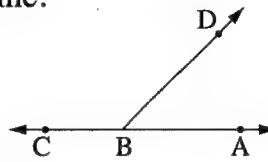
If m (∠ ABD) + m (∠ DBC) = 180°
, then $\overrightarrow{BA}$ and $\overrightarrow{BC}$ are on the same straight line.

The two adjacent angles whose outer sides are perpendicular , are complementary
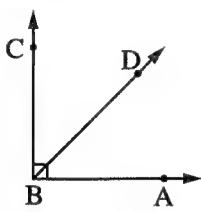
If $\overrightarrow{BA} \perp \overrightarrow{BC}$
, then m (∠ ABD) + m (∠ DBC) = 90°

The two adjacent angles formed by a straight line and a ray with a starting point on this straight line , are supplementary.
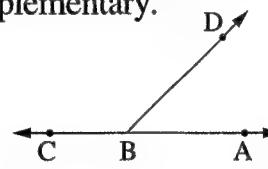
If B ∈ $\overleftrightarrow{AC}$
, then m (∠ ABD) + m (∠ DBC) = 180°

Congruence of two line segments

Two line segments are congruent if they are equal in length.
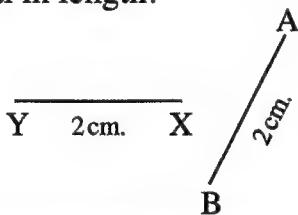
Congruence of two angles

Two angles are congruent if they are equal in measure.
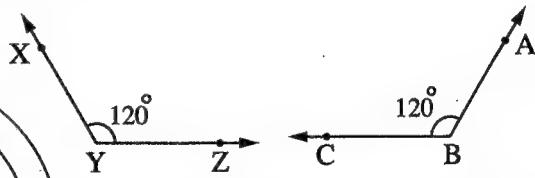
Congruence

Congruence of two polygons

Two polygons are congruent if there is correspondence between their vertices such that each side and each angle in the first polygon is congruent to its corresponding element in the other polygon.
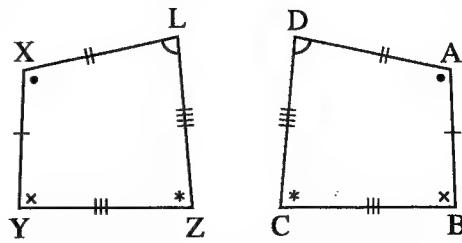
First case :

Two sides and the included angle (S.A.S.)

Two triangles are congruent if two sides and the inculded angle of one triangle are congruent to the corresponding parts of the other triangle.
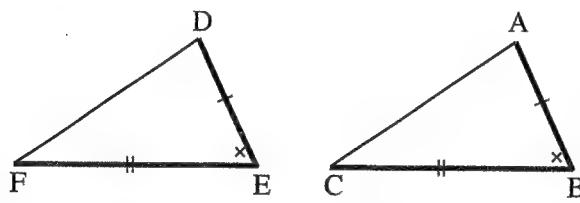
Second case :

Two angles and one side (A.S.A.)

Two triangles are congruent if two angles and the side drawn between their vertices of one triangle are congruent to the corresponding parts of the other triangle.
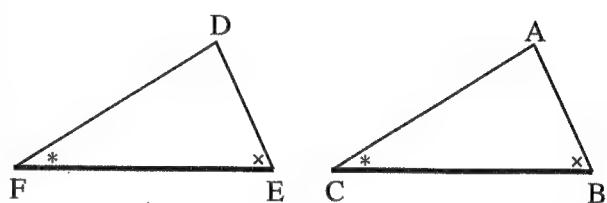
The cases of congruence
of two triangles

Third case :

Three sides (S.S.S.)

Two triangles are congruent if each side of one triangle is congruent to the corresponding side of the other triangle.
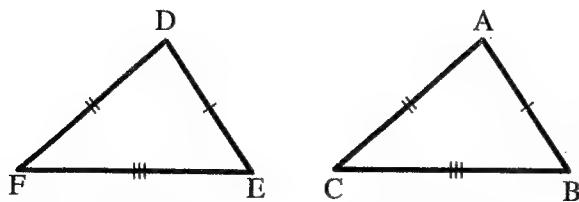
Fourth case :

Hypotenuse and one side in the right-angled triangle (R.H.S.)

Two right-angled triangles are congruent if the hypotenuse and a side of one triangle are congruent to the corresponding parts of the other triangle.
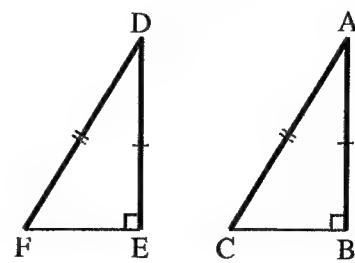
If a straight line intersects two parallel straight lines , then

Each two alternate angles are equal in measure.	Each two corresponding angles are equal in measure.	Each two interior angles in the same side of the transversal are supplementary.
For example : m ($\angle$ 1) = m ($\angle$ 2) (alternate angles)	*For example :* m ($\angle$ 1) = m ($\angle$ 2) (corresponding angles)	*For example :* m ($\angle$ 1) + m ($\angle$ 2) = 180°
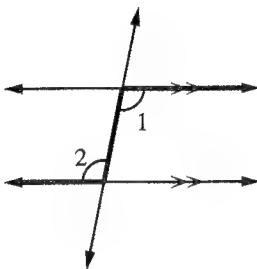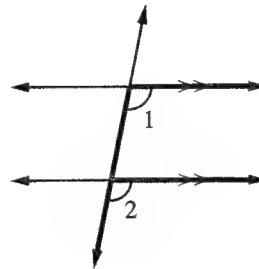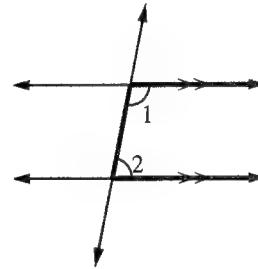
Remember — How to prove the parallelism of two straight lines

The two straight lines are parallel if a third straight line intersects them and **one** of the following cases is satisfied :

1 Two alternate angles have the same measure.

or

2 Two corresponding angles have the same measure.

or

3 Two interior angles in the same side of the transversal are supplementary.

Remember that

The perpendicular to one of two coplaner parallel straight lines is perpendicular to the other.

If $\overleftrightarrow{AB}$ // $\overleftrightarrow{CD}$, $\overleftrightarrow{EF} \perp \overleftrightarrow{AB}$

, then $\overleftrightarrow{EF} \perp \overleftrightarrow{CD}$
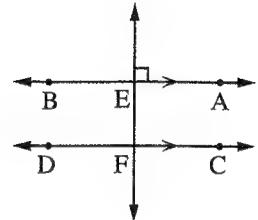
If two straight lines are parallel to a third straight line , then these two straight lines are parallel.

If $\overleftrightarrow{AB}$ // $\overleftrightarrow{XY}$, $\overleftrightarrow{CD}$ // $\overleftrightarrow{XY}$

, then $\overleftrightarrow{AB}$ // $\overleftrightarrow{CD}$
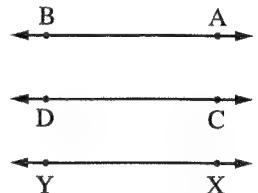
If parallel straight lines divide a straight line into segments of equal lengths , then they divide any other straight line into segments of equal lengths.

If $\overleftrightarrow{AE}$ // $\overleftrightarrow{BF}$ // $\overleftrightarrow{CG}$ // $\overleftrightarrow{DH}$

, $\overleftrightarrow{AD}$ and $\overleftrightarrow{EH}$ are transversals to them

and AB = BC = CD

, then EF = FG = GH
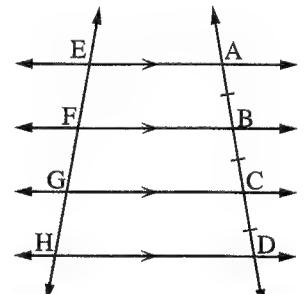
Final Examinations

on Geometry
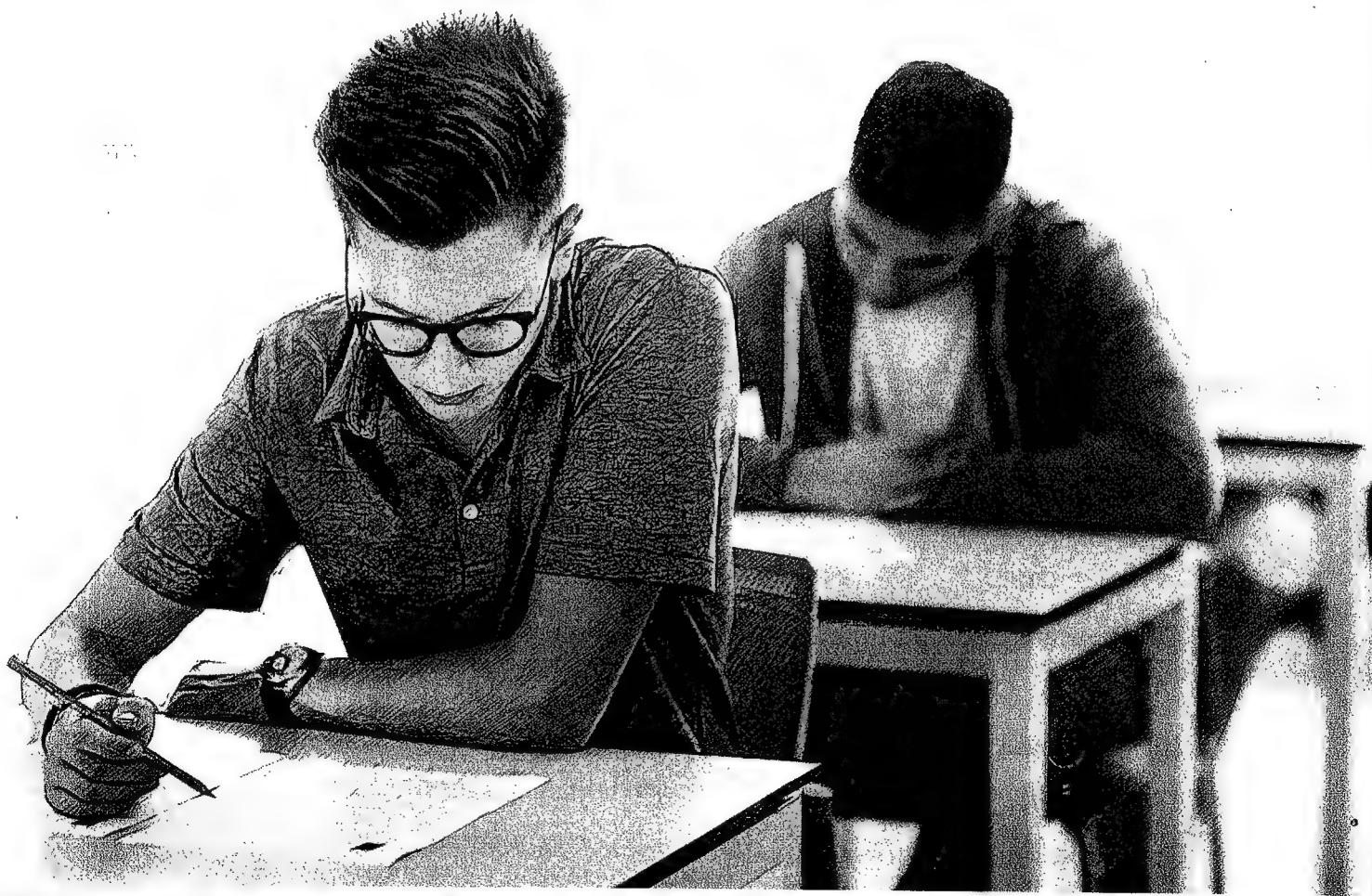
Model 1

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Answer the following questions :

1 Complete each of the following :

1 The perpendicular bisector of a line segment is called ···············

2 In the opposite figure :

If $\triangle ABC \equiv \triangle XYZ$, m $(\angle A)$ + m $(\angle B)$ = 140°
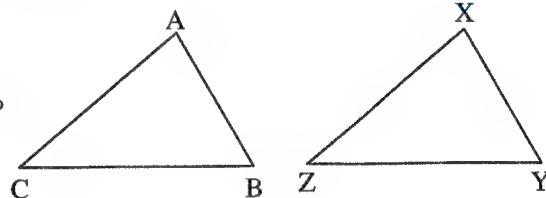
, then m $(\angle Z)$ = ···············°

3 If m $(\angle B)$ = 105° , then m (reflex $\angle B$) = ···············°

4 In the opposite figure :

If $\overrightarrow{MB} \cap \overleftrightarrow{AC} = \{M\}$, m $(\angle AMB)$ = 60°

, then the value of X equals ···············°
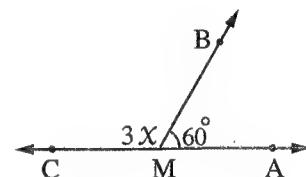
5 Two right-angled triangles are congruent if ···············

---

2 Choose the correct answer from those given :

1 If $\angle X \equiv \angle Y$, $\angle X$ and $\angle Y$ are supplementary angles , then m $(\angle X)$ = ···············

(a) 45°   (b) 90°   (c) 135°   (d) 180°

2 In the opposite figure :

$\overleftrightarrow{AF} \mathbin{/\mkern-5mu/} \overline{DE} \mathbin{/\mkern-5mu/} \overline{BC}$, AE = EC

, then AD : AB = ···············

(a) 2 : 1   (b) 3 : 2   (c) 1 : 3   (d) 1 : 2
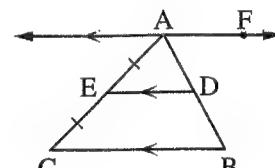
3 The two straight lines that are perpendicular to a third one are ···············

(a) perpendicular.   (b) intersecting.

(c) coincident.   (d) parallel.

4 The measure of each of the two equal complementary angles equals ···············

(a) 180°   (b) 45°   (c) 360°   (d) 90°

5 If two straight lines intersect , then each two ··············· angles have the same measure.

(a) vertically opposite   (b) adjacent

(c) alternate   (d) corresponding

6 If $\triangle ABC \equiv \triangle LMN$, then m $(\angle ACB)$ = m $(\angle$ ···············)

(a) LMN   (b) MLN   (c) LNM   (d) NLM

3 **[a] In the opposite figure :**

m (∠ BAD) = m (∠ BCD) = 90°

, AB = CB = 5 cm. , AD = 3 cm.

Mention the conditions for Δ ABD , Δ CBD to be congruent

, **then find :** The length of $\overline{CD}$
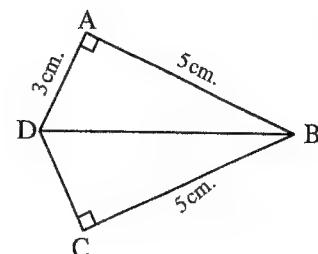
[b] In the opposite figure :

$\overleftrightarrow{AF}$ // $\overline{DE}$ // $\overline{XY}$ // $\overline{BC}$

, AD = DX = XB , AC = 9 cm.

Find : The length of $\overline{AY}$ (Give the reason)
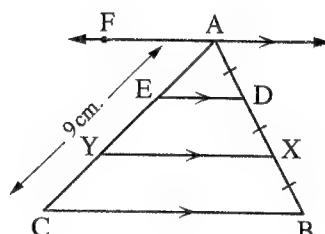
4 **[a] In the opposite figure :**

$\overrightarrow{AB}$ // $\overrightarrow{CD}$ // $\overrightarrow{EF}$

, m (∠ A) = 45°

, m (∠ E) = 130°

Find : m (∠ ACE)
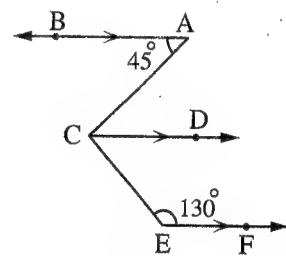
[b] In the opposite figure :

m (∠ AMB) = 110°

, m (∠ AMD) = 90°

, m (∠ DMC) = 40°

Find with steps : m (∠ BMC)
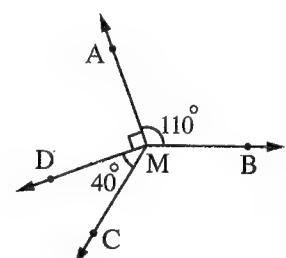
5 **[a] In the opposite figure :**

$\overline{AD}$ ∩ $\overline{BC}$ = {M}

, BM = MC

, AM = MD
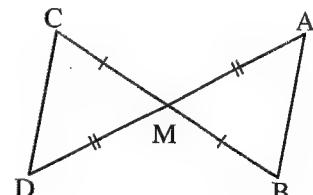
Write the conditions for Δ AMB , Δ DMC to be congruent.

[b] Using your geometric instruments , draw ∠ ABC of measure 110° , then draw $\overrightarrow{BF}$ to bisect the angle.

Model 2

Answer the following questions :

1 Complete each of the following :

1 The sum of the measures of the accumulative angles at a point equals ⋯⋯⋯°

2 If a straight line intersects two parallel straight lines ، then each two corresponding angles are ⋯⋯⋯

3 If m (∠ A) = 110° ، then m (reflex ∠ A) = ⋯⋯⋯°

4 Two right-angled triangles are congruent if ⋯⋯⋯

5 The two adjacent angles formed by the intersection of a straight line and a ray with a starting point on this straight line are ⋯⋯⋯

2 Choose the correct answer from those given :

1 If ∠ X complements ∠ Y and ∠ X ≡ ∠ Y ، then m (∠ X) = ⋯⋯⋯

(a) 45° (b) 90° (c) 180° (d) 360°

2 The number of triangles in the figure ⊠ equals ⋯⋯⋯

(a) 4 (b) 6 (c) 7 (d) 8

3 If the ratio between the measures of two supplementary angles is 5 : 13 ، then the measure of the smaller angle is ⋯⋯⋯

(a) 50° (b) 130° (c) 150° (d) 180°

4 Δ ABC ≡ Δ XYZ ، m (∠ A) + m (∠ B) = 100° ، then m (∠ Z) = ⋯⋯⋯

(a) 50° (b) 80° (c) 90° (d) 100°

5 The two straight lines that are perpendicular to a third one are ⋯⋯⋯

(a) perpendicular. (b) parallel. (c) coincident. (d) intersecting.

6 The figure ⋯⋯⋯ is not congruent to the opposite figure.
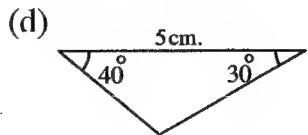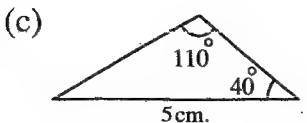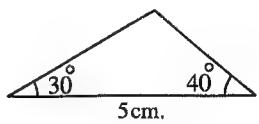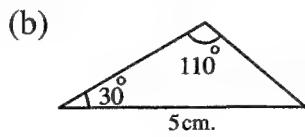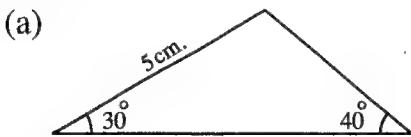
(a) (b) (c) (d)

3 [a] Mention two cases of congruency of two triangles.

[b] In the opposite figure :

AB = BC , AD = DC

, m (∠ C) = 80°

, m (∠ BDC) = 40°

Prove that : Δ CBD ≡ Δ ABD

, **then find :** m (∠ ABD)
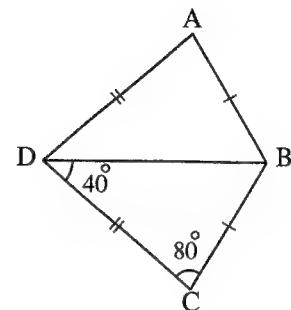
4 [a] In the opposite figure :

$\overrightarrow{DE}$ // $\overleftrightarrow{AC}$, m (∠ A) = 110°

, m (∠ D) = 70°

Find : m (∠ C)

Is $\overrightarrow{AB}$ // $\overrightarrow{CD}$? (Give the reason)
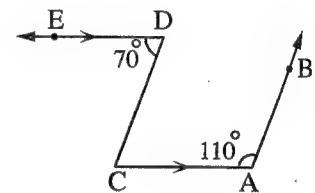
[b] Using the geometric instruments , draw ∠ ABC where m (∠ B) = 80° , then draw $\overrightarrow{BD}$
to bisect it.   (Don't remove the arcs).

5 [a] In the opposite figure :

$\overleftrightarrow{AC}$ ∩ $\overrightarrow{BD}$ = {B}

, m (∠ ABD) = 50°

, m (∠ DBC) = 2 X°
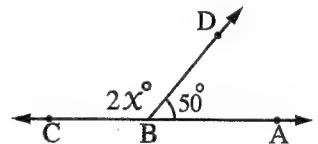
Find in degrees the value of X

[b] In the opposite figure :

$\overrightarrow{BD}$ bisects ∠ ABC

, m (∠ DBC) = 35°

, m (∠ BDC) = 120°

Find : m (∠ A) in degrees.

61
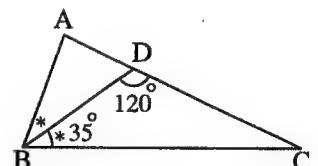
Model examination for the merge students

Answer the following questions :

1 **Complete each of the following :**

1. If m (∠ A) = 100° , then m (reflex ∠ A) = ·············°

2. The angle whose measure is 50° complements an angle of measure ·············°

3. The two straight lines parallel to a third are ·············

4. Two triangles are congruent if two sides and ·············

5. If △ ABC ≡ △ XYZ , then m (∠ Z) = m (∠ ·············)

2 **Choose the correct answer from those given :**

1. The sum of the measures of the accumulative angles at a point equals ·············

   (a) 630°   (b) 180°   (c) 90°   (d) 360°

2. The axis of symmetry of a line segment is ·············

   (a) perpendicular to it from its midpoint.   (b) parallel to it.

   (c) equal to it in length.   (d) congruent to it.

3. The supplement of the angle whose measure is 30° is an angle of measure ·············

   (a) 60°   (b) 180°   (c) 150°   (d) 90°

4. The angle whose measure is more than 90° and less than 180° is ············· angle.

   (a) an obtuse   (b) an acute   (c) a right   (d) a straight

5. If △ ABC ≡ △ XYZ , then AB = ·············

   (a) XY   (b) XZ   (c) YZ   (d) BC

3 **Put true (✔) for the correct statement and (✗) for the incorrect statement :**

1. The right-angled triangle is congruent to the equilateral triangle.   (   )

2. The two angles whose measures are 100° and 80° are supplementary.   (   )

3. From the opposite figure :

   (a) $\overleftrightarrow{AB}$ // $\overleftrightarrow{EF}$ (   )

   (b) $x = 70°$ (   )

   (c) $y = 180°$ (   )
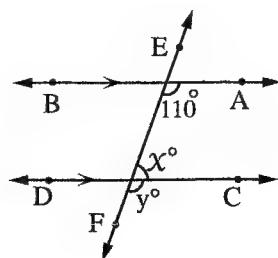
4 [a] In the opposite figure :

m (∠ ABC) = 50° , $\overrightarrow{BA}$ // $\overrightarrow{CD}$

Complete to find : m (∠ BCD)

$\overrightarrow{BA}$ // ⋯⋯⋯⋯⋯⋯

, then m (∠ ABC) = m (∠ ⋯⋯⋯⋯⋯) (⋯⋯⋯⋯⋯ angles)

, m (∠ BCD) = ⋯⋯⋯⋯⋯°

[b] From the opposite figure , complete :

① Δ ABM ≡ Δ ⋯⋯⋯⋯⋯
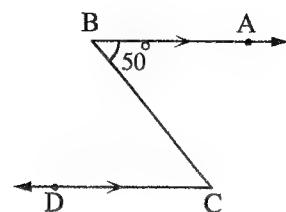
② AB = ⋯⋯⋯⋯⋯ cm.

③ m (∠ B) = m (∠ ⋯⋯⋯⋯⋯)

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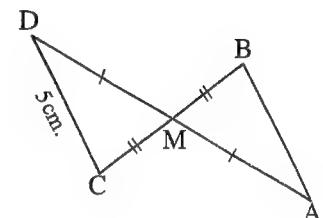
5 In each of the following figures , find the value of x :

①

$x = $ ⋯⋯⋯⋯⋯°

②

$x = $ ⋯⋯⋯⋯⋯°

③

$x = $ ⋯⋯⋯⋯⋯°

④
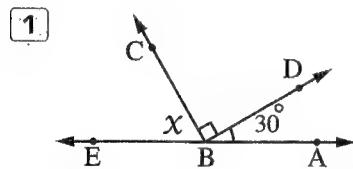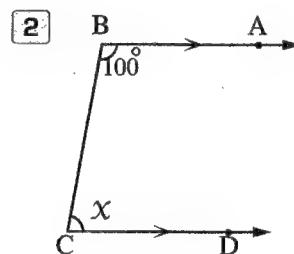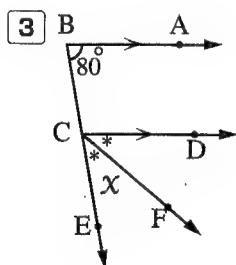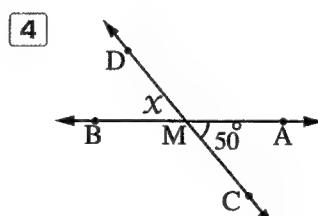
$x = $ ⋯⋯⋯⋯⋯°

⑤ In the opposite figure :

If Δ ABC ≡ Δ DEA ,

AE = 3 cm. and DE = 4 cm.

, then BE = ⋯⋯⋯⋯⋯ cm.

Some Schools Examinations ? on Geometry
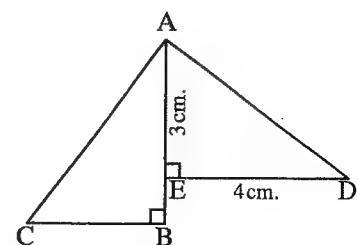
1 Cairo Governorate

Nasr City Educational Zone
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Answer the following questions :

1 Choose the correct answer :

1 If $\angle X \equiv \angle Y$ and $\angle X$, $\angle Y$ are supplementary angles , then m $(\angle X)$ = ⋯⋯⋯⋯

(a) 45°　　　(b) 90°　　　(c) 135°　　　(d) 180°

2 If two straight lines are perpendicular to a third
, then the two straight lines are ⋯⋯⋯⋯

(a) perpendicular.　(b) parallel.　(c) intersecting.　(d) congruent.

3 If $\triangle ABC \equiv \triangle XYZ$, m $(\angle A)$ + m $(\angle B)$ = 100° , then m $(\angle Z)$ = ⋯⋯⋯⋯

(a) 90°　　　(b) 100°　　　(c) 50°　　　(d) 80°

4 From the opposite figure :

X = ⋯⋯⋯⋯

(a) 60°

(b) 140°

(c) 30°

(d) 180°
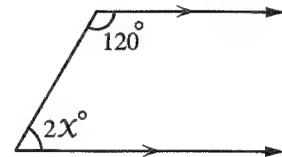
5 In the opposite figure :

$\overleftrightarrow{AF}$ // $\overline{XD}$ // $\overline{YE}$ // $\overline{CB}$

, AX = XY = YC , then AD : AB = ⋯⋯⋯⋯

(a) 1 : 1　　　(b) 1 : 2　　　(c) 1 : 3

6 If $\triangle ABC \equiv \triangle LMN$, then m $(\angle ACB)$ = m $(\angle$ ⋯⋯⋯⋯$)$

(a) LMN　　　(b) MLN　　　(c) LNM　　　(d) NLM
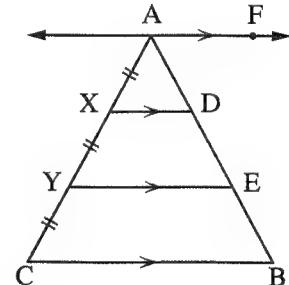
2 Complete :

1 If the ratio between the measures of two adjacent supplementary angles is 1 : 2
, then the measure of the largest angle is ⋯⋯⋯⋯°

2 If m $(\angle A)$ = 120° , then m (reflex $\angle A$) = ⋯⋯⋯⋯°

3 Two triangles are congruent if each side of ⋯⋯⋯⋯

4 From the opposite figure :

X = ⋯⋯⋯⋯°
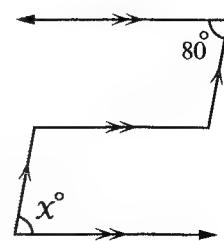
5 From the opposite figure :

m (∠ BMC) = ...°
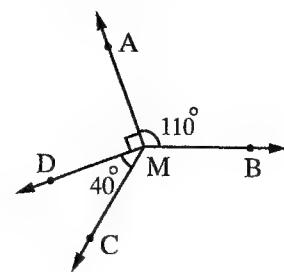
3 [a] In the opposite figure :

AB = BC , AD = CD

, m (∠ C) = 80°

, m (∠ BDC) = 40°

Prove that : △ CBD ≡ △ ABD **and find :** m (∠ ABD)
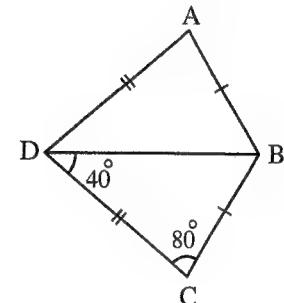
[b] In the opposite figure :

$\overrightarrow{DE}$ // $\overline{AC}$, m (∠ A) = 110°

, m (∠ D) = 70°

Prove that : $\overrightarrow{AB}$ // $\overline{CD}$
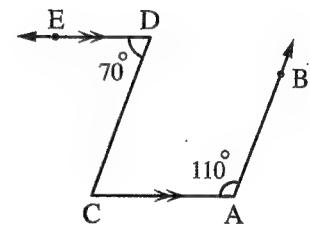
4 [a] In each of the following figures , find the value of X and give reason to your answer :
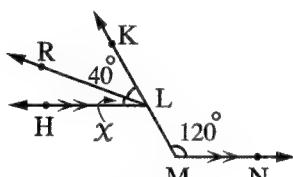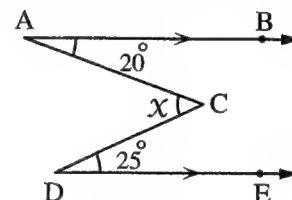
Fig. (1)   Fig. (2)

[b] Draw any acute-angled triangle , construct the perpendicular bisector of each side.

Do the perpendicular bisectors intersect at one point ?

5 [a] From the opposite figure :

Prove that :

The two triangles LMN and NZL are congruent

, **then find :** m (∠ LNZ)
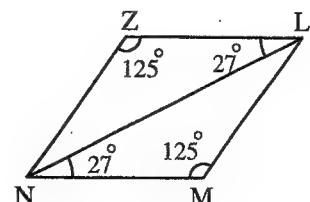
[b] In the opposite figure :

$\overline{AB}$ // $\overrightarrow{CE}$, m (∠ BAD) = 120°

, m (∠ BCD) = 30°

, m (∠ BAD) is four times m (∠ FDE)

Prove that : $\overrightarrow{DF}$ // $\overline{BC}$ and $\overrightarrow{DF}$ ⊥ $\overline{AD}$
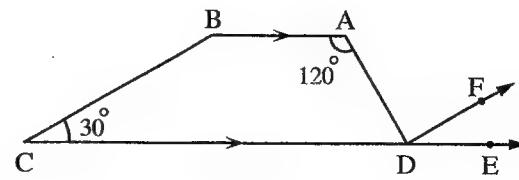
2 Cairo Governorate

El-Zeitoun Educational Zone
El-Ma'aref Modern Language School
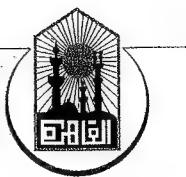
Answer the following questions :

1 **Choose the correct answer :**

1. If two straight lines are perpendicular to a third , then the two straight lines are ··············

   (a) perpendicular.   (b) parallel.   (c) congruent.   (d) intersecting.

2. If $\triangle ABC \equiv \triangle XYZ$, $m(\angle A) + m(\angle B) = 100°$, then $m(\angle Z) = $ ··············

   (a) 50°   (b) 90°   (c) 80°   (d) 100°

3. The image of the point $(-3, 5)$ by translation of 3 units in the negative direction of the y-axis is ··············

   (a) $(-3, 2)$ (b) $(-3, 8)$ (c) $(-6, 5)$ (d) $(0, 8)$

4. **In the opposite figure :**

   $\overleftrightarrow{BA} \cap \overrightarrow{CD} = \{C\}$

   , $m(\angle DCA) = 80°$

   , then $X = $ ··············

   (a) 20°   (b) 25°   (c) 30°   (d) 100°
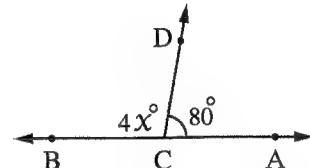
5. If $\triangle ABC \equiv \triangle XYZ$, $m(\angle A) = 50°$, $m(\angle Y) = 60°$

   , then $m(\angle C) = $ ··············

   (a) 50°   (b) 60°   (c) 70°   (d) 80°

6. The measure of the supplement of the angle whose measure is 30° equals ··············

   (a) 60°   (b) 180°   (c) 90°   (d) 150°

2 **Complete the following :**

1. If a straight line intersects two parallel straight lines , then each two corresponding angles are ··············

2. **In the opposite figure :**

   $X = $ ··············

3. If $\angle X$ complements $\angle Y$ and $\angle X \equiv \angle Y$, then $m(\angle X) = $ ··············°

4. The perimeter of the opposite figure is ·············· cm.

5. The two right-angled triangles are congruent if ··············
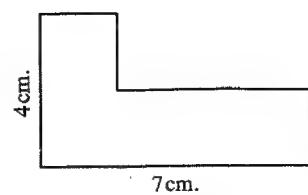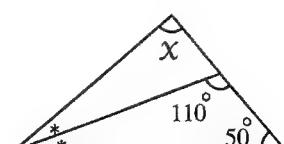
3 **[a]** From the opposite figure , find :

m (∠ ECF)

Give the reason.
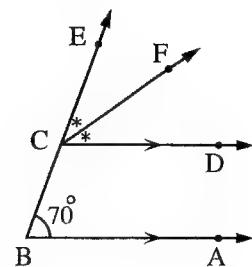
[b] From the opposite figure , find :

m (∠ BMC)

With steps.
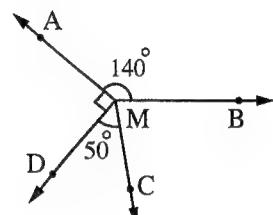
4 **[a]** In the opposite figure :

AB = BC , AD = CD , m (∠ C) = 80° , m (∠ BDC) = 40°

1 Prove that : △ CBD ≡ △ ABD

2 Find : m (∠ ABD)

[b] By using your geometric instruments , draw ∠ ABC of measure 110°
, then draw $\overrightarrow{BF}$ to bisect the angle.
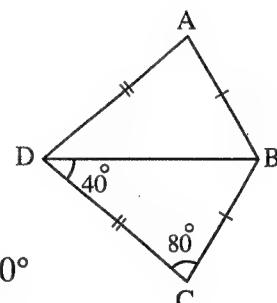
5 **[a]** From the opposite figure :

Prove that : **1** △ ROP ≡ △ SPO

2 m (∠ RPS) = m (∠ SOR)
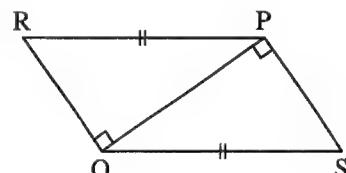
[b] In the opposite figure :

If $\overrightarrow{AB}$ // $\overrightarrow{CD}$, m (∠ D) = 65° , m (∠ A) = 115°

, then prove that :

$\overrightarrow{AC}$ // $\overrightarrow{DE}$
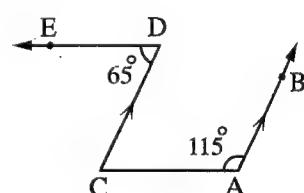
3 **Cairo Governorate**   Zone Educative Abdine
Lycee Bab El-Louk

Answer the following questions :

1 **Choose the correct answer :**

1 If ∠ X complements ∠ Y and ∠ X ≡ ∠ Y , then m (∠ X) = ··············

(a) 45°   (b) 90°   (c) 180°   (d) 360°

2 If △ ABC ≡ △ XYZ , m (∠ A) + m (∠ B) = 100° , then m (∠ Z) = ··············

(a) 50°   (b) 80°   (c) 90°   (d) 100°

3 If two straight lines are perpendicular to a third

, then the two straight lines are ·············

(a) perpendicular.   (b) parallel.   (c) congruent.   (d) intersecting.

4 The sum of the measures of the accumulative angles at a point is ·············

(a) 630°   (b) 180°   (c) 90°   (d) 360°

5 The measure of the supplement of the angle whose measure is 30° equals ·············

(a) 60°   (b) 180°   (c) 150°   (d) 90°

6 The angle whose measure is more than 90° and less than 180° is ············· angle.

(a) an obtuse   (b) an acute   (c) a right   (d) a straight

2 **Complete the following :**

1 The two triangles are congruent if two sides and ············· are congruent with the corresponding parts of the other.

2 If $\triangle ABC \equiv \triangle XYZ$, then m $(\angle Z)$ = m $(\angle$ ·············$)$

3 The sum of the measures of the accumulative angles at a point equals ·············°

4 If m $(\angle A) = 110°$, then m (reflex $\angle A$) = ·············°

5 The two adjacent angles formed by intersecting of a straight line and a ray are ·············

3 **[a] In the opposite figure :**

$\overrightarrow{AB}$ // $\overrightarrow{CD}$ // $\overrightarrow{EF}$, m $(\angle A) = 45°$

, m $(\angle E) = 130°$

Find : m $(\angle ACE)$
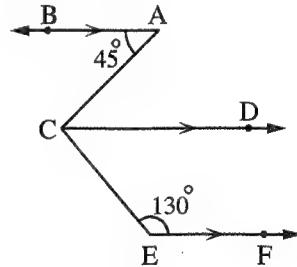
[b] In the opposite figure :

$\overline{AD} \cap \overline{BC} = \{M\}$, BM = MC , AM = MD

, write the conditions

for $\triangle AMB$, $\triangle DMC$ to be congruent.
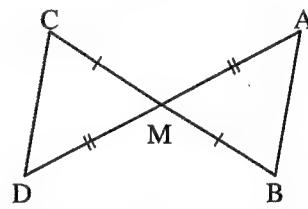
4 **[a] In the opposite figure :**

If $B \in \overleftrightarrow{AC}$, m $(\angle DBC) = 135°$

and $\overrightarrow{BA}$ bisects $\angle DBE$

Find : **1** m $(\angle ABD)$ **2** m $(\angle DBE)$ **3** m $(\angle CBE)$
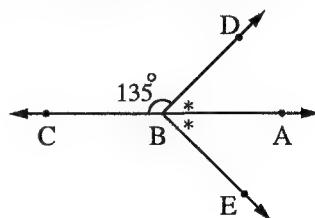
[b] By using your geometric instruments , draw $\angle ABC$ whose measure is 130°

, then draw $\overrightarrow{BF}$ to bisect the angle.

5 **[a]** **In the opposite figure :**

$\overleftrightarrow{AC} \cap \overrightarrow{BD} = \{B\}$

, $m (\angle ABD) = 60°$

, $m (\angle DBC) = 4\ X°$
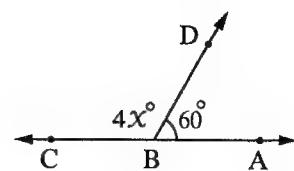
Find in degrees : The value of X

[b] **In the opposite figure :**

$\overrightarrow{BD}$ bisects $\angle ABC$, $m (\angle DBC) = 35°$

, $m (\angle BDC) = 120°$

Find : $m (\angle A)$ in degrees.

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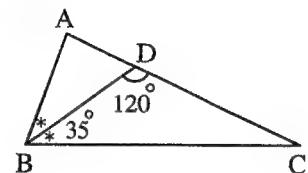
4 **Giza Governorate**

El-Haram Zone

El-Maarefa Exp. Lang. School
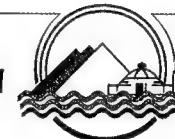
Answer the following questions :

1 **Choose the correct answer :**

1 If $\triangle ABC \equiv \triangle XYZ$, $m (\angle A) = 50°$, $m (\angle B) = 60°$, then $m (\angle Z) =$ ....

(a) 50°   (b) 60°   (c) 70°   (d) 120°

2 The sum of measures of the accumulative angles at a point equals ....

(a) 180°   (b) 630°   (c) 360°   (d) 603°

3 The angle whose measure is $78°\ 60\grave{}$, is .... angle.

(a) a right   (b) an acute   (c) an obtuse   (d) a straight

4 If $\angle A \equiv \angle B$ and $\angle A$ complements $\angle B$, then $m (\angle A) =$ ....

(a) 45°   (b) 90°   (c) 100°   (d) 180°

5 If two straight lines are parallel to a third straight line , then they are ....

(a) perpendicular.   (b) parallel.   (c) congruent.   (d) intersecting.

6 The measure of the supplement of an angle of measure 35° equals ....

(a) 65°   (b) 165°   (c) 180°   (d) 145°

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2 **Complete the following :**

1 The perpendicular bisector of a line segment is called ....

2 If $m (\angle A) = 160°$, then $m (\text{reflex} \angle A) =$ ....°

3 The two adjacent angles formed by a straight line and a ray with a start point on this straight line are ....

69

4 If two straight lines intersect , then each two vertically opposite angles are ··············

5 If $L_1 \perp L_2$ and $L_2 /\!/ L_3$, then L_1 ·············· L_3

3 [a] In the opposite figure :

$\overleftrightarrow{AB} \cap \overleftrightarrow{CD} = \{M\}$, m ($\angle$ BME) = 80°

, $\overrightarrow{MC}$ bisects $\angle$ AME

Find : **1** m ($\angle$ AMC)   **2** m ($\angle$ BMD)
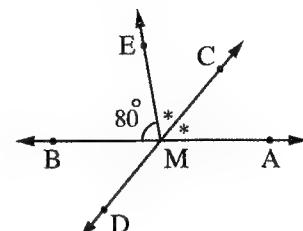
[b] In the opposite figure :

$\overrightarrow{BD}$ bisects $\angle$ ABC , m ($\angle$ DBC) = 35°

, m ($\angle$ BDC) = 120°

Find : m ($\angle$ A) in degrees.
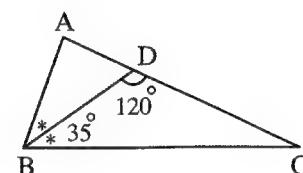
4 [a] In the opposite figure :

$\overrightarrow{AB} /\!/ \overline{DC}$, m ($\angle$ EBC) = 53° , m ($\angle$ D) = 137°

Is $\overline{BC} /\!/ \overline{AD}$? "State the reason"
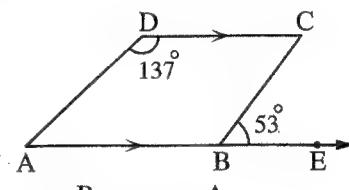
[b] In the opposite figure :

$\overrightarrow{AB} /\!/ \overrightarrow{CD}$, $\overrightarrow{CE}$ bisects $\angle$ ACD

, m ($\angle$ DCE) = 35°

Find : m ($\angle$ A)
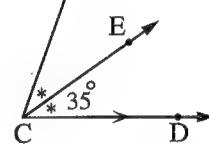
5 [a] Draw $\angle$ ABC of measure 85° , then bisect it. (Don't remove the arcs)
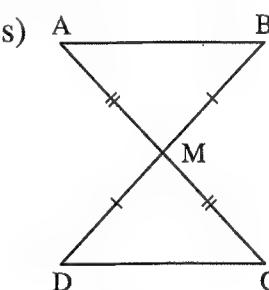
[b] In the opposite figure :

AM = CM

, BM = DM

Show with the reason if Δ ABM $\equiv$ Δ CDM or not.

5 **Giza Governorate**   Boulaq El-Dakrour Dire. of Edu.
Dar El-Hanan Lang. Sch. for Girls

Answer the following questions :

1 **Choose the correct answer :**

1 The supplement of the angle whose measure is 30° is an angle whose measure is ··············

(a) 60°   (b) 180°   (c) 150°   (d) 90°

2 If Δ ABC $\equiv$ Δ XYZ and m ($\angle$ A) + m ($\angle$ B) = 110° , then m ($\angle$ Z) = ··············

(a) 50°   (b) 60°   (c) 70°   (d) 80°

3 **From the opposite figure :**

The value of X = ··············

(a) 30°

(b) 15°

(c) 45°

(d) 18°
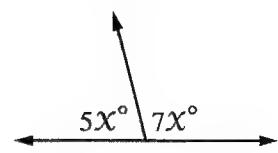
4 **From the opposite figure :**

X = ··············

(a) 20°

(b) 30°

(c) 40°

(d) 120°
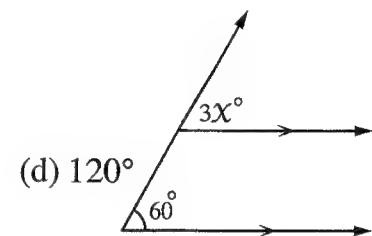
5 The angle of measure 179° is ··············

(a) acute.

(b) obtuse.

(c) right.

(d) straight.

6 **In the opposite figure :**

$\overleftrightarrow{AB} \cap \overleftrightarrow{CD} = \{M\}$, then X = ··············

(a) 30°

(b) 60°

(c) 45°

(d) 90°

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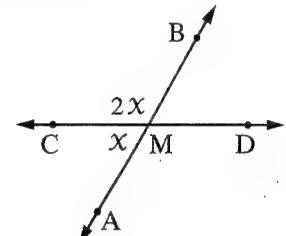
2 **Complete the following :**

1 The complement of an angle of measure 65° is an angle of measure ··············°

2 If m ($\angle$ B) = 160° , then m (reflex $\angle$ B) = ··············°

3 **In the opposite figure :**

$\overrightarrow{CD}$ // $\overrightarrow{BA}$, $\overrightarrow{DE}$ // $\overrightarrow{CB}$
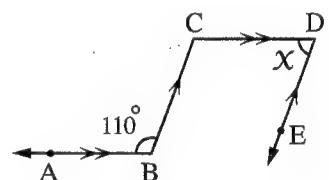
, then X = ··············°

4 **In the opposite figure :**

If $\overrightarrow{MB} \cap \overleftrightarrow{AC} = \{M\}$, m ($\angle$ AMB) = 60°

, then the value of X equals ··············°

5 **In the opposite figure :**

$\overrightarrow{AB}$ // $\overrightarrow{DE}$

, then X + y + z = ··············

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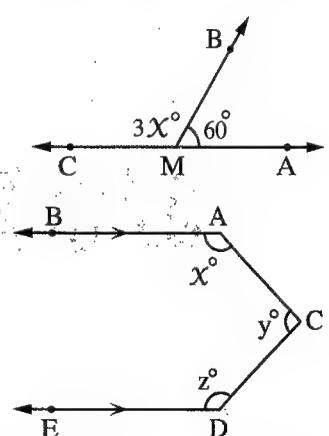
3 **[a] In the opposite figure :**

m ($\angle$ A) = m ($\angle$ C) = 90°

, AB = BC = 5 cm. , AD = 3 cm.

1 Mention the conditions for Δ ABD , Δ CBD to be congruent.

2 **Find :** The length of $\overline{CD}$

71
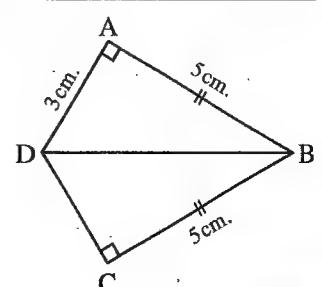
[b] In the opposite figure :

m ($\angle$ AEB) = 30° , m ($\angle$ BEC) = 110°

, m ($\angle$ AED) = 90°

Find : m ($\angle$ DEC)

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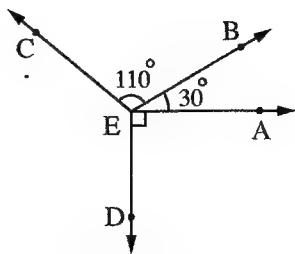
4 **[a] In the opposite figure :**

B $\in \overleftrightarrow{AC}$, m ($\angle$ FBC) = 30°

, m ($\angle$ ABD) = m ($\angle$ DBE) = m ($\angle$ EBF)

Find : m ($\angle$ ABE)
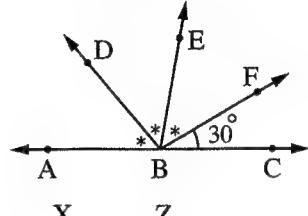
[b] In the opposite figure :

$\overrightarrow{ZX}$ // $\overrightarrow{LM}$, $\overrightarrow{LZ}$ // $\overrightarrow{MY}$, m ($\angle$ Z) = 60°

Find : **1** m ($\angle$ L)   **2** m ($\angle$ M)

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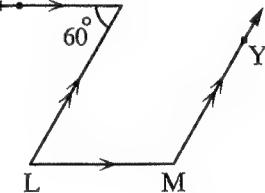
5 **[a] In the opposite figure :**

$\overrightarrow{BD}$ bisects $\angle$ ABC , m ($\angle$ DBC) = 35°

, m ($\angle$ BDC) = 120°

Find : m ($\angle$ A)
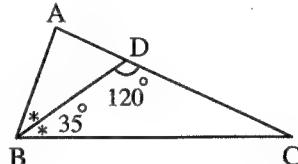
[b] In the opposite figure :

$\overleftrightarrow{AF}$ // $\overleftrightarrow{XY}$ // $\overleftrightarrow{DE}$ // $\overleftrightarrow{BC}$ and AY = YE = EC , AY = 3 cm.

, AX = 2 cm. and the perimeter of $\triangle$ ABC = 23 cm.

Find : The length of $\overline{BC}$
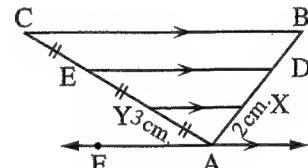
[c] Draw $\angle$ ABC of measure 100° and bisect it.   (Don't remove the arcs)

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6 **Alexandria Governorate**   East Educational Zone
Sidi Gaber Lang. Sch. for boys

Answer the following questions :

1 **Complete the following :**

1 If m ($\angle$ A) = 120° , then the measure of the reflex angle of $\angle$ A = ·············°

2 The two adjacent angles formed by intersecting a straight line and a ray are ·············

3 If $\angle$ A supplements $\angle$ B and $\angle$ A supplements $\angle$ C

, then $\angle$ B and $\angle$ C are ·············

4 Two triangles are congruent if the lengths of two sides and the measure of ············· are
congruent with the corresponding parts of the other.

⑤ If ∠ A and ∠ B are complementary angles , m (∠ A) = 2 m (∠ B) , then m (∠ B) = ·············°

② Choose the correct answer :

① If two straight lines are perpendicular to a third , then the two straight lines are ···············

    (a) perpendicular.   (b) congruent.   (c) parallel.   (d) intersecting.

② The axis of symmetry of a line segment is ···············

    (a) perpendicular from its midpoint.   (b) equal to it.

    (c) parallel to it.   (d) congruent to it.

③ **In the opposite figure :**

  X = ···············°

    (a) 80   (b) 120

    (c) 100   (d) 180
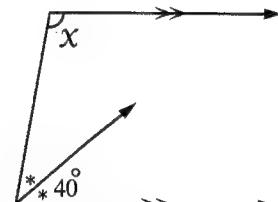
④ **In the opposite figure :**

  m (∠ CBD) = ···············°

    (a) 100   (b) 120

    (c) 140   (d) 240
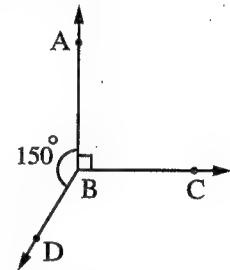
⑤ If △ ABC ≡ △ XYZ , m (∠ Z) = 55° , then m (∠ A) + m (∠ B) = ···············°

    (a) 110   (b) 115   (c) 120   (d) 125

③ [a] In the opposite figure :

  $\overleftrightarrow{AB} \cap \overleftrightarrow{CE} = \{M\}$, $\overrightarrow{MD} \perp \overrightarrow{MC}$, $\overrightarrow{MB}$ bisects ∠ DME

  Find showing the reason : ① m (∠ BME)   ② m (∠ AMC)

                                 ③ m (∠ AME)
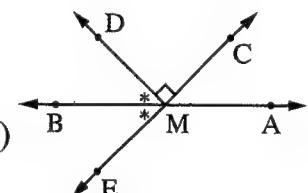
[b] Draw the line segment AB of length 8 cm. , then construct the axis of symmetry of $\overline{AB}$

                                          (Don't remove the arcs)

④ [a] In the opposite figure :

  Complete :

  ① △ ABM ≡ △ ···············

  ② m (∠ B) = m (∠ ···············)

  ③ m (∠ A) = m (∠ ···············)

  ④ The perimeter of △ DMC = ··············· cm.
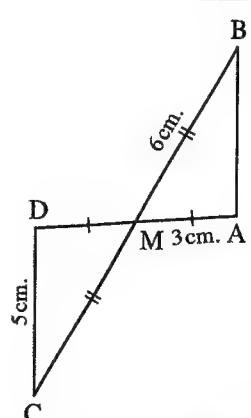
[b] In the opposite figure :

$\overrightarrow{AB} \parallel \overrightarrow{DC}$, m ($\angle$ A) = 120° , H $\in \overrightarrow{AC}$

, m ($\angle$ ECD) = 38°

Find : m ($\angle$ ACD) , m ($\angle$ HCE) (showing the reason)
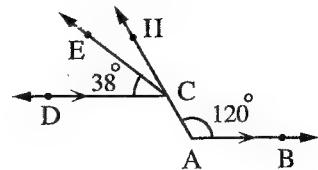
5 In the opposite figure :

$\overleftrightarrow{OR}$ is the axis of symmetry of the shape NERAM , O $\in \overleftrightarrow{MN}$

Complete : **1** Quad AMOR $\equiv$ Quad ⋯⋯⋯⋯

2 m ($\angle$ NOR) = m ($\angle$ ⋯⋯⋯⋯)

3 m ($\angle$ AMO) = m ($\angle$ ⋯⋯⋯⋯)

4 m ($\angle$ ORA) = m ($\angle$ ⋯⋯⋯⋯) = ⋯⋯⋯⋯°

5 m ($\angle$ NER) = m ($\angle$ ⋯⋯⋯⋯) = ⋯⋯⋯⋯°
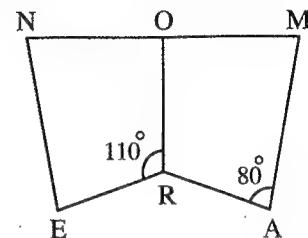
7 ▶ **Alexandria Governorate** **Borg El-Arab Educational Zone**
Al-Safwa Integrated Schools

Answer the following questions : *(Calculator is allowed)*

1 **Complete each of the following :**

1 The complement of the angle of measure 55° is an angle of measure ⋯⋯⋯⋯°

2 The sum of measures of the accumulative angles at a point equals ⋯⋯⋯⋯°

3 If m ($\angle$ B) = 160° , then m (reflex $\angle$ B) = ⋯⋯⋯⋯°

4 The perpendicular bisector of a line segment is called ⋯⋯⋯⋯

5 The number of triangles in the opposite figure is ⋯⋯⋯⋯
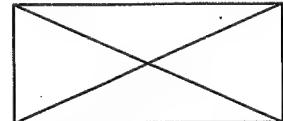
2 **Choose the correct answer :**

1 If $L_1 \parallel L_2$ and $L_2 \perp L_3$, then ⋯⋯⋯⋯

(a) $L_1 \perp L_2$ (b) $L_3 \parallel L_2$ (c) $L_1 \perp L_3$ (d) $L_3 \parallel L_1$

2 If Δ ABC $\equiv \Delta$ XYZ and m ($\angle$ A) + m ($\angle$ B) = 110° , then m ($\angle$ Z) = ⋯⋯⋯⋯°

(a) 50   (b) 60   (c) 70   (d) 80

3 If the ratio between the measures of two supplementary angles is 5 : 13

, then the measure of the smaller angle is ⋯⋯⋯⋯°

(a) 50   (b) 130   (c) 150   (d) 180°

4 The type of the angle of measure 89° 60́ is ⋯⋯⋯⋯

(a) acute.   (b) obtuse.   (c) right.   (d) reflex.

5 The two diagonals are perpendicular and equal in length in the ···············

(a) rectangle.   (b) rhombus.   (c) square.   (d) parallelogram.

6 If $\triangle ABC \equiv \triangle LMN$, then $\overline{AC}$ ··············· $\overline{LN}$

(a) =   (b) $\equiv$ (c) <   (d) >

3 [a] In the opposite figure :

$AB = AC$, $BD = CD$

, m ($\angle$ BAD) = 25°

Is $\triangle ADC \equiv \triangle ADB$? Why ?

Find : m ($\angle$ CAB)
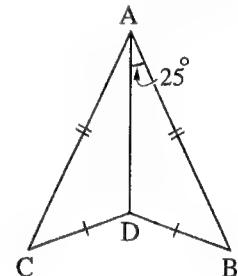
[b] In the opposite figure :

m ($\angle$ BMA) = 100°

, m ($\angle$ AMD) = 90°

, m ($\angle$ DMC) = 50°

Find with steps : m ($\angle$ BMC)
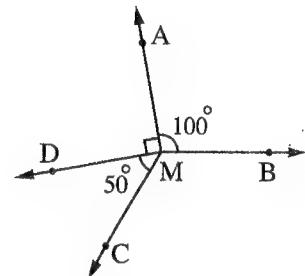
4 [a] In the opposite figure :

$\overleftrightarrow{AF}$ // $\overline{ED}$ // $\overline{YX}$ // $\overline{CB}$

, AD = DX = XB , AC = 9 cm.

Find : The length of $\overline{AY}$ (Give reason)

[b] Draw $\angle$ ABC of measure 100° and bisect it.
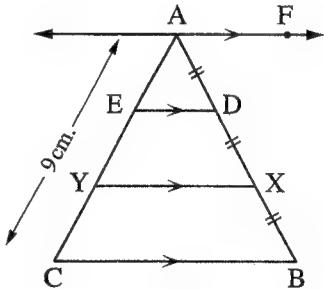
5 [a] In the opposite figure :

$\overrightarrow{ZX}$ // $\overline{LM}$

, $\overline{LM}$ // $\overrightarrow{NY}$

, m ($\angle$ N) = 110°

, m ($\angle$ Z) = 60°

Find : 1 m ($\angle$ L)   2 m ($\angle$ M)
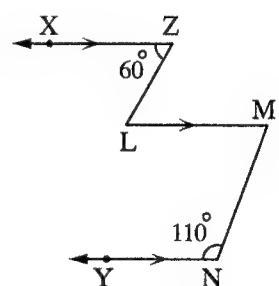
[b] In the opposite figure :

$\overrightarrow{BD}$ bisects $\angle$ ABC

, m ($\angle$ DBC) = 35°

, m ($\angle$ BDC) = 120°

Find : m ($\angle$ A)

75
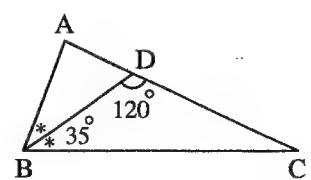
8 **El-Kalyoubia Governorate**   Directorate of Education
Mathematics Supervision

Answer the following questions :

1 **Choose the correct answer :**

1 If △ ABC ≡ △ XYZ , then AC = ··············

(a) XY   (b) XZ   (c) YZ   (d) AB

2 If m (∠ B) = 105° , then m (reflex ∠ B) = ··············

(a) 255°   (b) 75°   (c) 105°   (d) 50°

3 If $\overline{AB} \equiv \overline{CD}$ and AB = 4 cm. , then AB + 2 CD = ·············· cm.

(a) 10   (b) 4   (c) 8   (d) 12

4 The measure of the supplementary of the angle whose measure is 30° equals ··············°

(a) 60   (b) 80   (c) 150   (d) 90

5 A cube is of volume 125 cm³ , then the area of its base = ·············· cm².

(a) 5   (b) 15   (c) 25   (d) 10

6 The measure of the right angle is ··············°

(a) 60   (b) 90   (c) 180   (d) 70

2 **Complete the following :**

1 The two diagonals are equal in length in ·············· and ··············

2 The perpendicular bisector of a line segment is called ··············

3 The sum of the measures of the accumulative angles at a point equals ··············°

4 If △ ABC ≡ △ XYZ , m (∠ A) + m (∠ B) = 100° , then m (∠ Z) = ··············°

5 If two straight lines are perpendicular to a third , then the two straight lines are ··············

3 **[a] In the opposite figure :**

$\overrightarrow{DE}$ // $\overrightarrow{AC}$, m (∠ A) = 110° , m (∠ D) = 70°

Complete the following :

1 m (∠ C) = ·············· because ··············

2 Is $\overrightarrow{AB}$ // $\overline{CD}$? (··············) because ··············
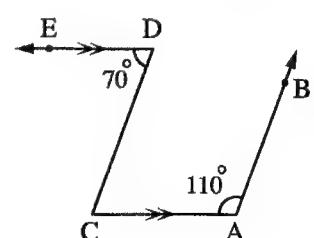
[b] Using the geometric instruments , draw ∠ ABC where m (∠ B) = 120°

, then draw $\overrightarrow{BD}$ to bisect the angle.   (Don't remove the arcs)

76

4 **[a] In the opposite figure :**

$\overleftrightarrow{AB} \cap \overleftrightarrow{CD} = \{M\}$, $\overrightarrow{ME}$ bisects $\angle$ AMC , m ($\angle$ BMC) = 116°

Complete the following :

1 m ($\angle$ AMC) = ·············°

2 m ($\angle$ AMD) = ·············°

3 m ($\angle$ AME) = ·············°
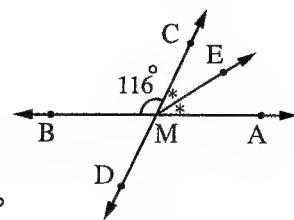
[b] In the opposite figure :

$\overleftrightarrow{XY}$ // $\overleftrightarrow{ED}$ // $\overleftrightarrow{BC}$, AE = EC

Complete the following :

1 AD = ·············

2 AD : AB = ············· : ·············
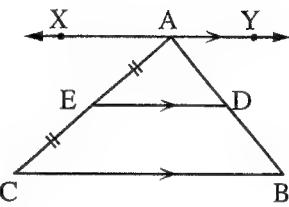
5 **[a] From the opposite figure complete the following :**

1 $\triangle$ ABM $\equiv$ $\triangle$ ·············

2 CD = ············· cm.

3 m ($\angle$ B) = m ($\angle$ ·············)
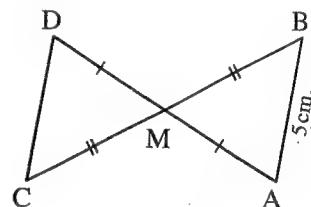
[b] Mention two cases of congruency of two triangles.

9 **El-Sharkia Governorate** / **West Zagazig Zone**
Zagazig English Lang. Sch. for Girls

Answer the following questions :

1 **Choose the correct answer :**

1 If $\angle$ X complements $\angle$ Y and $\angle$ X $\equiv$ $\angle$ Y , then m ($\angle$ X) = ·············°

(a) 45   (b) 90   (c) 20   (d) 180

2 A square is of perimeter 20 cm. , then its area = ············· cm².

(a) 4   (b) 5   (c) 25   (d) 400

3 The two diagonals are equal in length in the ·············

(a) rhombus.   (b) parallelogram.   (c) trapezium.   (d) rectangle.

4 **In the opposite figure :**

$B \in \overleftrightarrow{AC}$, then x = ·············

(a) 30   (b) 120

(c) 40   (d) 150
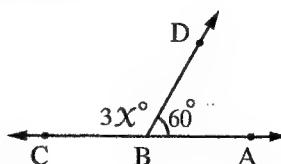
5 If m ($\angle$ A) = 110° , then m (reflex $\angle$ A) = ·············

(a) 70°   (b) 360°   (c) 250°   (d) 150°

6 **In the opposite figure :**

If $\overleftrightarrow{AF}$ // $\overline{ED}$ // $\overleftrightarrow{CB}$, AE = EC , then AD : AB = ·············

(a) 2 : 1

(b) 3 : 2

(c) 1 : 3

(d) 1 : 2

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2 **Complete each of the following :**

1 If $\triangle ABC \equiv \triangle XYZ$, m ($\angle$ A) + m ($\angle$ B) = 120° , then m ($\angle$ Z) = ·············°

2 If a straight line intersects two parallel lines , then each two corresponding angles are ·············

3 If $\triangle ABC \equiv \triangle XYZ$, then AC = ·············

4 Two right-angled triangles are congruent if ·············

5 If two straight lines intersect , then the measures of each two vertically opposite angles are ·············

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3 **[a] In the opposite figure :**

$\overrightarrow{BD}$ bisects $\angle$ ABC , m ($\angle$ DBC) = 35°

, m ($\angle$ BDC) = 120°

Find : m ($\angle$ C) , m ($\angle$ ABC) and m ($\angle$ A)

[b] In the opposite figure :

AC = AB , DC = DB

, m ($\angle$ CAD) = 30°

1 **Prove that :** $\triangle ABD \equiv \triangle ACD$

2 **Find :** m ($\angle$ CAB)

---

4 **[a] In the opposite figure :**

$\overrightarrow{DF}$ // $\overline{AC}$, m ($\angle$ A) = 100°

, $\overrightarrow{DE}$ bisects $\angle$ FDC , m ($\angle$ FDE) = 40°

1 **Find :** m ($\angle$ FDC) and m ($\angle$ C)

2 **Prove that :** $\overrightarrow{CD}$ // $\overrightarrow{AB}$

[b] In the opposite figure :

The polygon ABCF $\equiv$ the polygon EDCF

, m ($\angle$ EFC) = 110° , BC = 5 cm.

Find : **1** m ($\angle$ AFC) , m ($\angle$ AFE) and m ($\angle$ FCB)

2 The length of $\overline{BD}$

5 **[a] In the opposite figure :**

$\overrightarrow{AB}$ // $\overrightarrow{CD}$ // $\overrightarrow{EF}$, $\overrightarrow{CD}$ bisects ∠ ACE

, m (∠ A) = 50°

Find : m (∠ ACE) and m (∠ E)
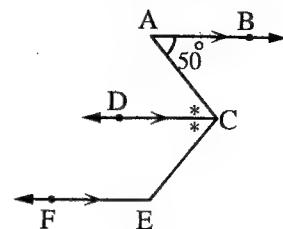
[b] Using the ruler and compasses , draw the triangle ABC in which BC = 6 cm.

, AB = AC = 5 cm. Draw $\overline{AD} \perp \overline{BC}$ where $\overline{AD} \cap \overline{BC} = \{D\}$

(Don't remove the arcs)

10 **El-Monofia Governorate**

Kwesna Educational Directorate
Mathematics Supervision

Answer the following questions : (Calculator is permitted)

1 **Choose the correct answer :**

1 The sum of the measures of the accumulative angles at a point equlas ············°

(a) 90   (b) 180   (c) 270   (d) 360

2 If two triangles ABC and XYZ are congruent , then ············

(a) BC = XZ   (b) YX = CA   (c) ZY = CB   (d) AB = YZ

3 If a straight line intersects two parallel straight lines , then each two interior angles in the same side of the transversal are ············

(a) equal.   (b) supplementary.   (c) corresponding.   (d) complementary.

4 If Δ ABC ≡ Δ XYZ , m (∠ A) + m (∠ B) = 115° , then m (∠ Z) = ············°

(a) 115   (b) 65   (c) 15   (d) 70

5 If m (∠ A) = 90° , then m (reflex ∠ A) = ············

(a) 270   (b) 180   (c) 90   (d) 360

6 If ∠ A supplements ∠ B and ∠ A ≡ ∠ B , then m (∠ B) = ············°

(a) 45   (b) 90   (c) 120   (d) 60

2 **Complete each of the following :**

1 The angle whose measure is 40° complements an angle of measure ············°

2 Two triangles are congruent if two sides and the ············ in one of them are congruent to their corresponding parts of the other.

3 If two straight lines are perpendicular to a third line , then these two straight lines are ············

4 If L_1 // L_2 and $L_1 \perp L_3$, then L_3 ············ L_2

5 In the opposite figure :

$x =$ ....
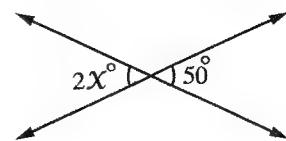
3 [a] In the opposite figure :

m ($\angle$ AMB) = 50°

, m ($\angle$ BMC) = 60°

, m ($\angle$ DME) = 40° and $\overrightarrow{MA} \perp \overrightarrow{ME}$

Find : m ($\angle$ DMC)
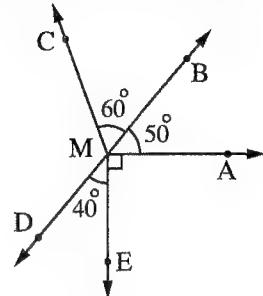
[b] In the opposite figure :

CB = FE , AC = EC

, m ($\angle$ B) = m ($\angle$ F) = 90°

, m ($\angle$ E) = 70° and FC = 80 cm.

Find : m ($\angle$ A) and the length of $\overline{AB}$
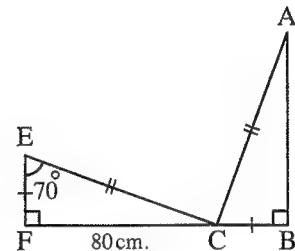
4 [a] Draw the angle ABC where m ($\angle$ B) = 130° , using the ruler and the compasses bisect $\angle$ B

[b] In the opposite figure :

$\overrightarrow{EF}$ // $\overrightarrow{CD}$ // $\overrightarrow{AB}$

, m ($\angle$ CEF) = 120°

, m ($\angle$ HCD) = 45°

Find : The measures of the angles of $\triangle$ AHC
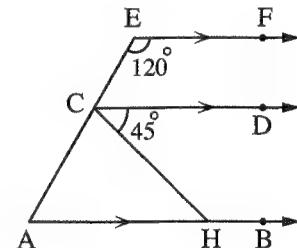
5 [a] In the opposite figure :

m ($\angle$ ZXY) = m ($\angle$ ZLY) = 90°

, XY = LY and ZX = 5 cm.

1 Is $\triangle$ YXZ $\equiv$ $\triangle$ YLZ ? Why ?

2 **Find :** The length of $\overline{ZL}$
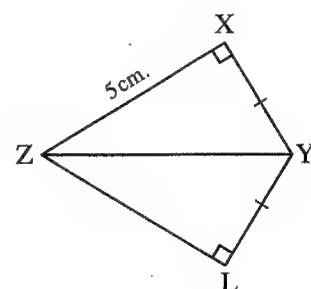
[b] In the opposite figure :

$\overrightarrow{AD}$ // $\overrightarrow{BE}$

, m ($\angle$ F) = 80°

, m ($\angle$ A) = 110° and m ($\angle$ ABF) = 150°

Is $\overrightarrow{BE}$ // $\overrightarrow{FC}$? (Give reason)

80
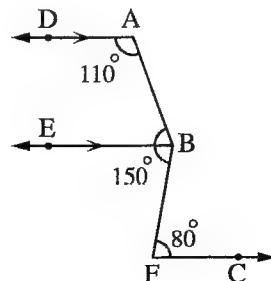
11 **El-Dakahlia Governorate** Talkha Educational Directorate
A.M.D.L School

Answer the following questions :

1 **Choose the correct answer :**

1 The sum of measures of the accumulative angles at a point is ··············

(a) 180°   (b) 90°   (c) 360°   (d) 60°

2 The acute angle supplements ·············· angle.

(a) an acute   (b) an obtuse   (c) a right   (d) a reflex

3 The two straight lines parallel to a third straight line are ··············

(a) intersecting.   (b) congruent.   (c) parallel.   (d) perpendicular.

4 If $\triangle ABC \equiv \triangle DEF$, m ($\angle$ A) + m ($\angle$ B) = 110° , then m ($\angle$ F) = ··············

(a) 180°   (b) 110°   (c) 80°   (d) 70°

5 In the opposite figure :

X = ··············

(a) 80°   (b) 100°   (c) 20°   (d) 40°

6 $\overrightarrow{AB} \cup \overrightarrow{AC}$ = ··············

(a) $\overrightarrow{AB}$ (b) $\angle$ ABC   (c) $\angle$ BAC   (d) $\varnothing$
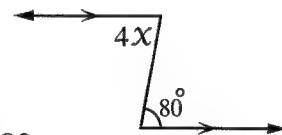
2 **Complete the following :**

1 The complement of an angle of measure 75° is an angle of measure ··············

2 If m ($\angle$ A) = 160° , then m (reflex $\angle$ A) = ··············°

3 If two straight lines intersect , then the measures of each two vertically opposite angles
are ··············

4 If $\overline{AB} \equiv \overline{XY}$, then AB − XY = ··············

5 If $\angle$ A supplements $\angle$ B and $\angle$ A $\equiv$ $\angle$ B , then m ($\angle$ B) = ··············°

3 **[a]** State any two cases of congruency of two triangles.

[b] From the opposite figure :

1 Prove that : $\triangle$ ABC $\equiv$ $\triangle$ ADC

2 Find : m ($\angle$ BAC)
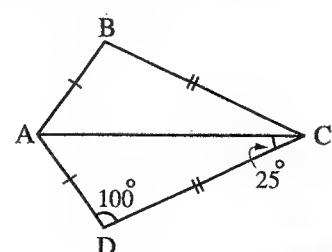
4 **[a] In the opposite figure :**

$\overleftrightarrow{AF}$ // $\overline{DE}$ // $\overline{BC}$

, D is the midpoint of $\overline{AB}$

, AE = 7 cm.

Find : AC
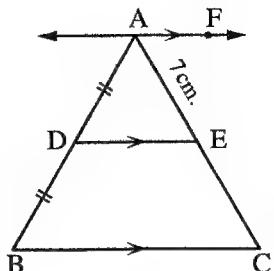
[b] Using the geometric instruments , draw $\triangle$ ABC in which BC = 6 cm. , AB = AC = 5 cm.

, then draw $\overline{AD} \perp \overline{BC}$ where $\overline{AD} \cap \overline{BC} = \{D\}$, **Find by measuring :** AD

(Don't remove the arcs)

5 **[a] In the opposite figure :**

$\overleftrightarrow{AB}$ // $\overleftrightarrow{DC}$, $\overleftrightarrow{BC}$ // $\overleftrightarrow{AD}$

, $E \in \overleftrightarrow{BC}$, m ($\angle$ D) = 10 $x°$

, m ($\angle$ ABE) = 80°

Find : The value of x
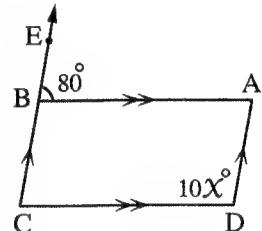
[b] In the opposite figure :

$C \in \overleftrightarrow{AB}$, m ($\angle$ ACD) = 130° , $\overrightarrow{CE}$ bisects $\angle$ BCD

Find : m ($\angle$ DCE)
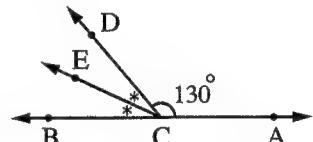
12) Ismailia Governorate

Directorate of Education
Math's Supervision
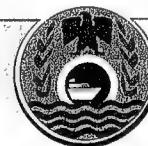
Answer the following questions :

1 **Choose the correct answer :**

1 The angle of measure 60° supplements an angle of measure ·············°

(a) 40   (b) 30   (c) 120   (d) 90

2 If two straight lines are perpendicular to a third , then the two straight lines are ·············

(a) perpendicular.   (b) intersecting.   (c) parallel.   (d) congruent.

3 If $\triangle$ ABC $\equiv$ $\triangle$ XYZ , m ($\angle$ A) + m ($\angle$ B) = 140° , then m ($\angle$ Z) = ·············°

(a) 60   (b) 40   (c) 80   (d) 140

4 The number of axes of symmetry of the square equals ·············

(a) 1   (b) 2   (c) 3   (d) 4

5 If a straight line cuts two parallel lines , then each two corresponding angles are ·············

(a) equal in measure.   (b) complementary.

(c) supplementary.   (d) right.

6 If m (∠ A) = 100° , then m (reflex ∠ A) = ·············°

   (a) 80   (b) 260   (c) 50   (d) 100

2 Complete the following :

1 If two adjacent angles are complementary , then their outer sides are ···············

2 If △ ABC ≡ △ XYZ , then AC = ···············

3 If ∠ C ≡ ∠ D , m (∠ C) = 90° , then m (∠ D) = ···············°

4 The measure of the straight angle equals ···············°

5 The perimeter of a square is 40 cm. , then its side length is ··············· cm.

3 [a] In the opposite figure :

AC = AB

, DC = DB

Is △ ADB ≡ △ ADC ? Why ?
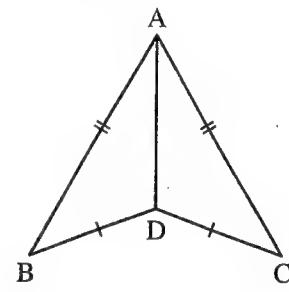
[b] In the opposite figure :

$\overrightarrow{AD}$ // $\overline{BC}$

, m (∠ EAD) = 60°

, m (∠ CAD) = 50°

Find : 1 m (∠ C)   2 m (∠ B)   3 m (∠ BAC)
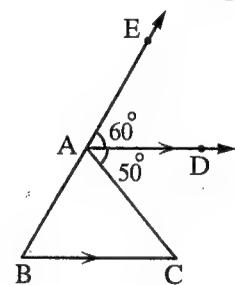
4 [a] In the opposite figure :

m (∠ DBE) = 30°

, ∠ CBD is a right angle

, m (∠ EBA) = 110°

Find : m (∠ ABC)
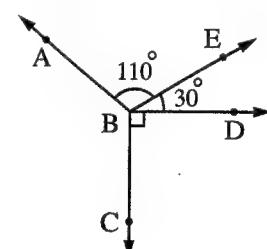
[b] Draw $\overline{AB}$ of length 6 cm. and bisect it.   (Don't remove the arcs)

5 [a] In the opposite figure :

$\overrightarrow{BA}$ // $\overrightarrow{CD}$ // $\overrightarrow{YZ}$

, m (∠ ABC) = 105°

, m (∠ ZYC) = 50°

Find : 1 m (∠ YCD)   2 m (∠ BCD)   3 m (∠ BCY)

83
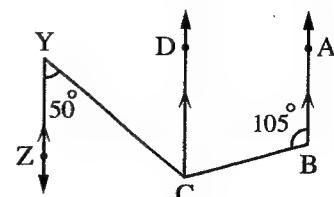
[b] In the opposite figure :

AB = BC = 4 cm. , AD = 3 cm.

, m (∠ A) = m (∠ C) = 90°

[1] Is △ ABD ≡ △ CBD ? Why ?

[2] **Find :** The length of $\overline{CD}$

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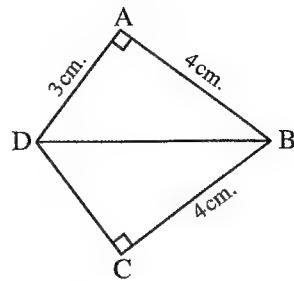
13) Damietta Governorate

Damietta Inspection of Mathematics
Official Language Schools

Answer the following questions :

1 | Choose the correct answer :

[1] If ∠ X supplements ∠ Y and ∠ X ≡ ∠ Y , then m (∠ X) = ·············°

(a) 45   (b) 90   (c) 180   (d) 360

[2] If △ ABC ≡ △ XYZ , then ·············

(a) AB = YZ   (b) BC = XZ   (c) YX = CA   (d) ZY = CB

[3] The centimeter cube is a unit for measuring the ·············

(a) perimeter.   (b) area.   (c) volume.   (d) length.

[4] Two straight lines are perpendicular to a third line

, then the two straight lines are ·············

(a) perpendicular.   (b) parallel.   (c) congruent.   (d) intersecting.

[5] $\overleftrightarrow{XY}$ ············· $\overleftrightarrow{XY}$

(a) ⊈   (b) ∈   (c) ⊂   (d) ⊄

[6] **In the opposite figure :**

If $\overleftrightarrow{AC} \cap \overrightarrow{MB} = \{M\}$

, then the value of X = ·············°

(a) 20   (b) 30   (c) 40   (d) 60

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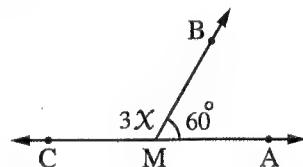
2 | Complete each of the following :

[1] If m (∠ A) = 120° , then m (reflex ∠ A) = ·············°

[2] If the perimeter of a square is 20 cm. , then its area equals ············· cm².

[3] The number of edges of the cuboid is ·············

[4] If a straight line cuts two parallel straight lines

, then each two alternate angles are ·············

[5] If $\overline{AB} ≡ \overline{CD}$, then AB − CD = ·············

3 [a] In the opposite figure :

$\overrightarrow{AB}$ // $\overline{DC}$

, m (∠ A) = 60°

, m (∠ D) = 120°

1 Find : m (∠ C)   2 Is $\overrightarrow{AC}$ // $\overrightarrow{DE}$? Why ? (Write the steps)
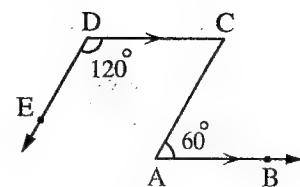
[b] Draw ∠ ABC where m (∠ B) = 115° Using the ruler and compasses bisect ∠ B by $\overrightarrow{BD}$

(Don't remove the arcs)

4 [a] In the opposite figure :

$\overleftrightarrow{AF}$ // $\overline{DE}$ // $\overline{XY}$ // $\overline{BC}$

, AD = DX = XB

, AY = 6 cm.

Find : The length of $\overline{AC}$ (Give the reason)
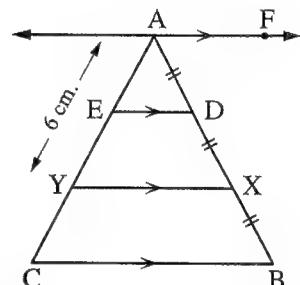
[b] In the opposite figure :

m (∠ BAD) = m (∠ BCD) = 90°

, AB = CB = 5 cm. , AD = 3 cm.

Mention the conditions for Δ ABD , Δ CBD to be congruent

, then find : The length of $\overline{CD}$
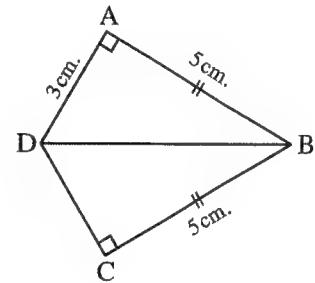
5 [a] In the opposite figure :

$\overleftrightarrow{AC}$ ∩ $\overleftrightarrow{DE}$ = {B}

, m (∠ ABD) = 50°

, m (∠ ABF) = 90°

Find showing the steps :

1 m (∠ DBC)   2 m (∠ CBE)   3 m (∠ FBE)
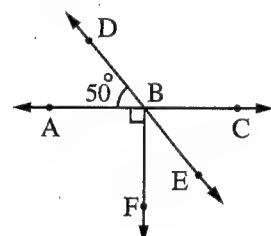
[b] In the opposite figure :

AB = BC , AD = CD

, m (∠ C) = 80°

, m (∠ BDC) = 40°

Is Δ CBD ≡ Δ ABD ? Why ?

and find : m (∠ ABD)

85
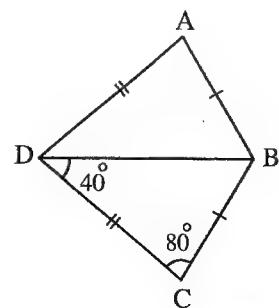
14 **Souhag Governorate**   Maths Supervision
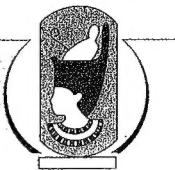
Answer the following questions :

1 **Choose the correct answer :**

1 If ∠ X ≡ ∠ Y and ∠ X , ∠ Y are supplementary angles , then m (∠ X) = ··············

(a) 45°   (b) 90°   (c) 135°   (d) 180°

2 If two straight lines are perpendicular to a third line , then the two straight lines are ··············

(a) perpendicular.   (b) parallel.   (c) congruent.   (d) intersecting.

3 If Δ XYZ ≡ Δ ABC and m (∠ A) + m (∠ B) = 100° , then m (∠ Z) = ··············

(a) 50°   (b) 80°   (c) 100°   (d) 360°

4 The angle whose measure is more than 90° and less than 180° is ··············

(a) obtuse.   (b) acute.   (c) right.   (d) straight.

5 If m (∠ X) = 2 m (∠ Y) , ∠ X and ∠ Y are two complementary angles , then m (∠ Y) = ··············

(a) 90°   (b) 45°   (c) 30°   (d) 15°

6 The sum of the measures of the accumulative angles at a point is ··············

(a) 45°   (b) 90°   (c) 180°   (d) 360°

2 **Complete each of the following :**

1 If two straight lines intersects , then each two vertically opposite angles are ··············

2 If Δ ABC ≡ Δ XYZ , then XZ = ··············

3 If ∠ A supplements ∠ B , m (∠ A) = 100° , then m (reflex ∠ B) = ··············°

4 In the opposite figure :

A ∈ $\overleftrightarrow{CB}$

, then m (∠ DAE) = ··············°
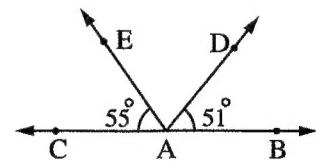
5 In the opposite figure :

$\overrightarrow{CD}$ // $\overrightarrow{BA}$

, $\overrightarrow{DE}$ // $\overrightarrow{CB}$

, then X = ··············°
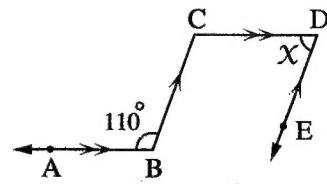
3 **[a]** In the opposite figure :

AB = AC

, BD = DC

, m (∠ CAD) = 30°

    1 **Prove that :** △ ABD ≡ △ ACD

    2 **Find :** m (∠ CAB)
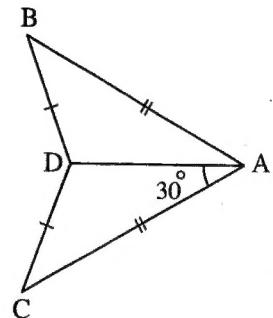
[b] Using the ruler and the compasses , draw the angle ABC where m (∠ ABC) = 110°
and draw $\overrightarrow{BD}$ to bisect the angle.   (Don't remove the arcs)

4 **[a]** In the opposite figure :

$\overrightarrow{CD}$ // $\overrightarrow{BA}$, $\overrightarrow{CB}$ // $\overrightarrow{AH}$

, $\overrightarrow{AE}$ bisects ∠ BAH , m (∠ EAH) = 58°

Find : m (∠ C)
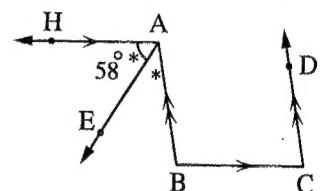
[b] In the opposite figure :

m (∠ AEB) = 30° , m (∠ BEC) = 110°

, m (∠ AED) = 90°

Find : m (∠ DEC)
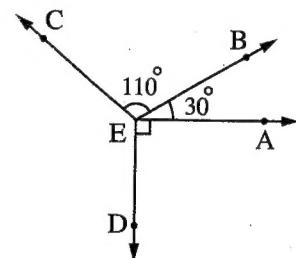
5 **[a]** In the opposite figure :

$\overleftrightarrow{AF}$ // $\overline{ED}$ // $\overline{YX}$ // $\overline{CB}$

, AD = DX = XB

, AC = 9 cm.

Find : The length of $\overline{AY}$
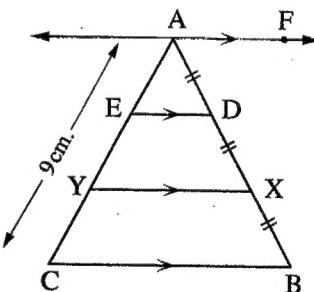
[b] In the opposite figure :

m (∠ A) = m (∠ C) = 90° , m (∠ ABD) = 31°

, AB = 5 cm.

, AD = CD

    1 **Prove that :** △ ABD ≡ △ CBD   **2** **Find :** The length of $\overline{BC}$

    3 **Find :** m (∠ CBD)
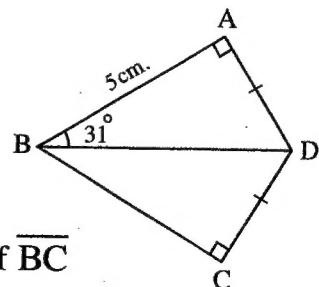
(15) Luxor Governorate

Answer the following questions :

1 Choose the correct answer :

1. A square is of side length 7 cm. , then its perimeter = ·············· cm.

   (a) 14   (b) 21   (c) 24   (d) 28

2. The circumference of the circle = ··············

   (a) 2π (b) $2\pi r$ (c) πr (d) πr^2

3. The sum of measures of the accumulative angles at a point equals ··············°

   (a) 360   (b) 180   (c) 603   (d) 150

4. If $L_1 // L_3$, $L_2 // L_3$, then ··············

   (a) $L_1 // L_2$ (b) $L_1 \perp L_2$ (c) $L_2 \perp L_3$ (d) $L_1 \perp L_3$

5. The measure of the supplement of the angle whose measure is 30° equals ··············°

   (a) 60   (b) 180   (c) 150   (d) 90

6. If $\angle X$ complements $\angle Y$ and $\angle X \equiv \angle Y$, then m $(\angle X)$ = ··············°

   (a) 45   (b) 90   (c) 180   (d) 360

2 Complete :

1. Two triangles are congruent if two sides and ·············· of one triangle are congruent to their corresponding parts of the other triangle.

2. If m $(\angle A)$ = 105° , then m (reflex $\angle A$) = ··············°

3. If $\Delta ABC \equiv \Delta XYZ$, then $\overline{AC} \equiv$ ··············

4. If a straight line intersects two parallel lines , then each two corresponding angles are ··············

5. In ΔABC , if m $(\angle A)$ = 50° , m $(\angle B)$ = 40° , then m $(\angle C)$ = ··············°

3 [a] In the opposite figure :

   m $(\angle AMB)$ = 110° , m $(\angle AMD)$ = 90°

   , m $(\angle DMC)$ = 40°

   Find : m $(\angle BMC)$ (With steps)
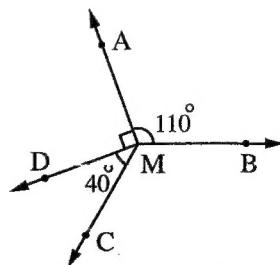
[b] Using the geometric tools , draw ∠ ABC whose measure is 90°
, then draw $\overrightarrow{BF}$ to bisect the angle.   (Don't remove the arcs)

4 [a] In the opposite figure :

$\overrightarrow{DE}$ // $\overline{BC}$

, $\overline{DC}$ // $\overrightarrow{BA}$

, m (∠ D) = 70°

Find : m (∠ C) , m (∠ B) (Give reason)
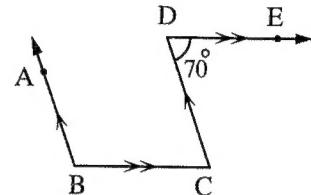
[b] In the opposite figure :

The polygon ABCD ≡ the polygon AFHD

Complete :

[1] AB = ·············   [2] BC = ·············

[3] m (∠ C) = m (∠ ·············)   [4] m (∠ F) = m (∠ ·············)
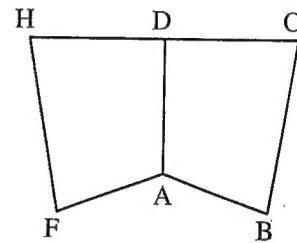
5 [a] In the opposite figure :

AB = BC

, AD = DC

, m (∠ C) = 80°

[1] **Prove that :** △ ABD ≡ △ CBD

[2] **Find :** m (∠ A)
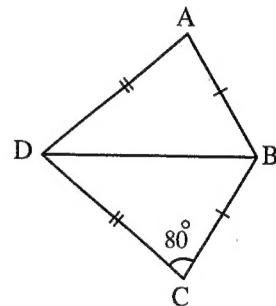
[b] In the opposite figure :

$\overleftrightarrow{AF}$ // $\overline{XY}$ // $\overline{BC}$

, AY = YC

, AX = 3 cm.

Find : The length of $\overline{AB}$ (Give reason)